COMMONWEALTH MYCOLOGICAL INSTITUTE

REVIEW OF MEDICAL AND VETERINARY MYCOLOGY

VOL. II 1956 PART 7

1399. LANGER (E.) & KADEN (R.). **Lackförmige fungistatische Wirkstoffe.** [Varnish-type fungistatic agents.]—*Münch. med. Wschr.*, 96, 23, pp. 674–676, 4 figs., 1954.

In *in vitro* tests at the Skin Clinic of the Free University, Rudolf Virchow Hospital, Berlin, the growth of *Candida albicans*, *Penicillium glaucum*, and *Microsporum gypseum* was appreciably inhibited on slides painted with a varnish designated preparation 304 (mykohexan), which also gave promising results in preliminary clinical trials in the therapy of various dermato- and onychomycoses.

1400. LATTE (B.) & PIREDDA (A.). **Localizzazione blefaro-ciliare de epidermofizia diffusa da Trichophyton gypseum asteroides.** [Blepharo-ciliary localization of diffuse epidermophytosis due to *Trichophyton gypseum asteroides.*]—*Boll. Oculist.*, 33, 11, pp. 761–770, 3 figs., 1954. [French and English summaries.]

From the Dermatological Clinic of the University of Sassari, Sardinia, the authors report a case of epidermophytosis (*Trichophyton gypseum asteroides*) [*T. mentagrophytes*] involving mainly the right blepharo-ciliary region in a seven-year-old boy. Attention is drawn to the rarity of the fungus as an agent of infection of the eyelids and eyelashes and to the difficulties encountered in its treatment; a cure was eventually effected by the conventional method of topical applications of sulpho-salicylic acid in a base of iodized alcohol.

1401. KOGOJ (F.). **Superponierte Tuberkulin- und Trichophytin-Reaktionen.** [Superimposed tuberculin and trichophytin reactions.]—*Acta allergolog.*, 7, 1–2, pp. 204–214, 1954.

The results of tuberculin and trichophytin tests on 14 patients suffering from trichophytia profunda are reported from the Dermatological Clinic, Zagreb, Yugoslavia. Weak reactions to tuberculin could be strengthened by the superimposition of either antigen, while strong responses to trichophytin could be either intensified or reduced by the same treatment. The outcome of inoculation experiments on 16 guinea-pigs with *Trichophyton gypseum* [*T. mentagrophytes*] also appeared to indicate that the action of the antigens is correlated with the degree of exhaustion of the local maximal reactivity before or during superimposition.

1402. LEPERCQ (G.). **Les maladies du cuir chevelu chez l'enfant.** [Diseases of the scalp in the infant.]—*Nourrisson Fr.*, 42, 1, pp. 29–34, 1954.

Clinical features of various forms of infantile scalp infection occurring in France are described, including favus [*Trichophyton schoenleini*] and the tineas caused by *T.* and *Microsporum* spp.

1403. Lévy-Lebhar (G.) & Lévy-Lebhar (J.-P.). **L'épilation en série des teignes du cuir chevelu par la radiothérapie ; à propos des 5,600 cas traités de 1947 à 1953.** [Serial epilation of tineas of the scalp by radiotherapy with reference to the 5,600 cases treated from 1947 to 1953.]—*J. Radiol. Électrol.*, 35, 7–8, pp. 629–631, 1954.

Full details are given of the methods employed in epilation of the scalp by X-rays for the cure of trichophytoses [*Trichophyton* spp.] and favus [*T. schoenleini*] at Casablanca, Morocco, during the period from 1947 and 1953. The treatment is reported to have given excellent results and to be totally devoid of risk in the hands of experienced operators.

1404. Lindemayr (W.) & Luger (A.). **Diagnostische und prognostische Bedeutung der intracutanen Trichophytinreaktion.** [Diagnostic and prognostic significance of intracutaneous trichophytin reaction.]—*Hautarzt*, 5, 6, pp. 260–264, 1954.

Among 335 patients (163 with dermatomycoses, 78 with eczema, and 94 with other skin diseases) tested intracutaneously with trichophytin at the University Skin Clinic, Vienna, the largest number (113) of positive reactors was found in the first group. The result of the test depends on the depth and in some degree on the extent of the pathological process, but neither on the duration of the complaint nor on the identity of the pathogen. There were 50 negative reactors in the same group.

1405. Dostrovsky (A.), Kallner (G.), Raubitschek (F.), & Sagher (F.). **Tinea capitis. An epidemiologic, therapeutic and laboratory investigation.**—*J. invest. Derm.*, 24, 3, pp. 195–200, 1955.

This report from the Department of Dermatology and Venerology, Hadassah University Hospital, and the Central Bureau of Statistics, Government of Israel, Jerusalem, is based on 6,390 patients treated for tinea capitis in Jerusalem between the years 1926 and 1953. More than 93 per cent. of these cases occurred in immigrants who had been in Israel less than five years, most of them coming from the Near and Middle East and North Africa. Of 6,208 cases in which the type of infecting organism was known, 5,364 were of tinea trichophytica and 844 of tinea favosa infection. The number of infections in patients over 16 years of age was 302. Cultures were made in all cases occurring after 1939, and of 1,358, 23·6 per cent. were negative. Of the positive cultures, 80 per cent. were *Trichophyton violaceum*, 11·9 per cent. *T. schoenleini*, 4·8 per cent. *T. mentagrophytes*, 1·7 per cent. *T. tonsurans*, and 1·6 per cent. remained unidentified. The intradermal trichophytin test was positive in 172 out of 304 cases. Treatment consisted of X-ray epilation followed by repeated painting with iodine, the recurrence rate being 2·5 per cent.

1406. Marselou (U.). **Sur une onychomycose à Trichophyton rosaceum.** [On an onychomycosis due to *Trichophyton rosaceum*.]—*Ann. Inst. Pasteur*, 88, 2, pp. 265–267, 1 fig., 1955.

Trichophyton rosaceum was isolated at the Institut Pasteur, Paris, from a case of onychomycosis in a 56-year-old female. The dermatophyte is very rare and has apparently only once before been recorded as an agent of onychomycosis (in Italy: *Ann. Derm. Syph., Paris, 1909*, p. 433, 1909).

1407. Meyer (P. S.). **Über die Pilzkrankung der Genitalzonen.** [On the fungal pathology of the genital regions.]—*Z. Haut- u. Geschlechtskr.*, 18, 8, pp. 233–236, 1955.

Information is presented from Haifa, Israel, on the clinical aspects and therapy of mycoses of the genital regions caused by *Epidermophyton E. floccosum*] and other fungi.

1408. Miura (O.). **Utilization of chitinase in treatment of dermatomycosis. I. Influence of Bacilli chitinovori on the culture of dermatophytes. II. Influence of crude chitinase fluid on the cultures of fungi.**—*Tohoku J. exp. Med.*, 59, 4, pp. 403–409, 1954.

In the first of these papers the author describes the results of experiments at temperatures of 20° to 25° and 37° C. with mixed cultures of the dermatophytes *Trichophyton ferrugineum*, *T. violaceum*, *T. gypseum* [*T. mentagrophytes*], *T. asteroides* [*T. mentagrophytes*], *T. interdigitale*, *Epidermophyton inguinale* [*E. floccosum*], and *Sporotrichum beurmanni* [*S. schencki*] and several types of *Bacillus chitinovorus*. The extremely tenacious chitinous cell membranes of the fungi were decomposed, reducing the organisms to the state of 'ghosts'.

In the second series of experiments the same organisms were used, except that *S. schencki* was replaced by *Candida albicans*. Immersion of the cultures in a solution of crude chitinase obtained from *B. chitinovorus* at 37° resulted in the quasi-complete destruction of the fungi in three days. The solution lost its activity after seven days.

1409. Oláh (D.) & Máramarosi (G.). **Eine besondere Form der Sycosis parasitaria an der Unterlippe.** [A special form of parasitic sycosis on the lower lip.]—*Dermatologica, Basel*, 108, 1, pp. 35–37, 2 figs., 1954.

Two cases of sycosis (*Trichophyton* sp.) characterized by unusual involvement of the lower lip are reported from the University Dermatological Clinic, Debrecen, Hungary.

1410. Muskatblit (E.), Taschdjian (Claire L.), & Franks (A. G.). **Hotchkiss–McManus stain versus clearing in KOH in the diagnosis of superficial mycoses.**—*Arch. Derm. Syph., Chicago*, 67, 5, pp. 507–509, 1953.

Of 340 patients examined at the New York University Post-graduate Medical School by the Hotchkiss–McManus stain technique and by clearing in potassium hydroxide, as well as by culture, all were clinically suggestive of fungus infections, and the presence of fungi was demonstrated in 200 cases. The potassium hydroxide treated specimens from cases of ringworm yielded a higher percentage of positive results than the stained specimens, while the position was reversed in moniliasis [*Candida* spp.] and tinea versicolor.

1411. Murrell (T. W.) & Reid (J. D.). **Inflammatory ringworm in man due to Trichophyton faviforme contracted from Cattle.**—*Virginia med. (Semi-)Month.*, 80, 10, pp. 572–575, 3 figs., 1953.

From the Medical College of Virginia, Richmond, the authors report five cases of inflammatory tinea caused by *Trichophyton faviforme* [*T. verrucosum*], the common agent of infection in cattle. Four of the patients were in daily contact with cattle and three had been treating them for ringworm. The skin of one of the affected animals yielded the same fungus, which made good growth on Sabouraud's agar with the addition of 100 mg. per cent. thiamine at 30° to 37° C. Therapy consisted in potassium iodide and X-ray treatment to reduce the inflammatory reaction.

1412. Oláh (D.) & Máramarosi (G.). **Eine seltene klinische Abart der oberflächlichen Trichophytie des behaarten Kopfes (Trichophytia psoriasiformis capillitii).** [A rare clinical variety of superficial trichophytosis of the hairy scalp (trichophytia psoriasiformis capillitii).]—*Dermatologica, Basel*, 108, 1, pp. 33–35, 1 fig., 1954.

Trichophyton faviforme [*T. verrucosum*] was isolated at the University

Dermatological Clinic, Debrecen, Hungary, from a thick, squamous, yellowish-white, sharply delimited lesion, 6 cm. in diameter, on the scalp of an 11-year-old boy. Psoriasiform mycoses are stated to be very rare. A cure was effected within 2½ weeks by painting with tincture of iodine and dressing with a cinnabar-sulphur ointment.

1413. Pereiro Miguens (M.). **Contribución al estudio de la flora dermatofítica de Galicia (España). Estudio micológico de las cepas aisladas.** [Contribution to the study of the dermatophytic flora of Galicia (Spain). (A mycological study of the strains isolated.)]—*Arch. Inst. Farmacol. exp.*, 5, 1–2, pp. 225–287, 11 figs., 1 graph, 1953. [Abs. in *Excerpta med., Amst.*, Sect. XIII, 9, 2, pp. 67–68, 1955.]

At the Institute of Experimental Pharmacology, Santiago de Compostela, Spain, the dermatophytes isolated from patients in the province of Galicia [cf. 2, No. 423] were intensively studied on Sabouraud's honey and glucose agars, cereal grain media, cereal and starch agars, milk, litmus milk, gelatinized must, a growth-promoting medium composed of carbohydrates and nitrogen, a medium to determine the assimilation of ethyl alcohol, and three synthetic media designated A, B, and C.

On the basis of morphological characters, including macroconidial and aleuriospore dimensions, and physiological reactions, the species are allotted to the genera defined by Emmons as follows: (1) *Trichophyton*, comprising *T. mentagrophytes*, *T. tonsurans*, *T. schoenleini*, *T. album*, *T. violaceum*, *T. concentricum*, *T. megnini*, *T. rubrum*, *T. gallinae*, and *T. quinckeanum*; (2) *Microsporum*, including *M. audouini*, *M. canis*, and *M. gypseum*; and (3) *Epidermophyton*, represented by *E. floccosum*. To facilitate classification a key was devised with the following principal features: (1) dusty or chalky colonies; (2) woolly, hairy, or velvety colonies on honey agar at 27° C.; and (3) colonies with a dull, waxy or moist, smooth or rugose, occasionally slightly dusty or velvety surface. As a rule neither aleuriospores nor macroconidia are produced on Sabouraud's media.

1414. Wallach (E. A.). **Convulsions following treatment of tinea capitis with asterol dihydrochloride ointment ; report of a case.**—*Arch. Derm. Syph., Chicago*, 67, 5, pp. 517–518, 1953.

A report from the St. Louis University School of Medicine is given of a case in a three-year-old boy suffering from tinea capitis treated with 5 per cent. asterol [2, No. 1102] in polythene glycol by inunction twice daily into the scalp for eight weeks prior to the onset of convulsions, which were accompanied by personality changes. No physical or radiological evidence of organic disease could be found, but the electro-encephalogram was consistent with convulsive disorder, without definite localization. There was leucopenia with relative lymphocytosis. The convulsions gradually decreased in severity and number, and the blood picture returned to normal. Mention is made of another case with similar findings.

1415. Pirk (L. A.) & Severinghaus (E. L.). **Convulsions following treatment of tinea capitis with asterol dihydrochloride ointment.** *Arch. Derm. Syph., Chicago*, 67, 5, pp. 519–521, 1953.

In a letter from the Clinical Research Department of the manufacturers of asterol dihydrochloride (2 dimethylamino-6 [beta-diethylaminoethoxy]-benzothiazole dihydrochloride) the reported cases of neurotoxic and convulsive complications of treatment with the drug [2, No. 1414] are analysed. The writers reiterate the warning that it should not be administered to infants (up

to two years) or applied to mucous membranes, and assert that if the dosage in children aged two to ten years is restricted to 60 gm. per week the risk of producing such complications is remote.

1416. Raubitschek (F.). **Family epidemic of tinea capitis, cutis glabrosae and unguium caused by Trichophyton megnini (Blanchard) 1896.**—*Dermatologica, Basel,* 109, 1, pp. 25–30, 14 figs., 1954. [German and French summaries.]

An outbreak of infection by *Trichophyton megnini* [1, No. 2537], involving the scalp, glabrous skin, and nails of four members of a family—husband and wife, aged 32 and 27, and two sons, four and five—is reported from the Hebrew University–Hadassah Medical School, Jerusalem, Israel. All the patients were given topical applications of asterol, supplemented in one by X-ray and mechanical epilation followed by treatment of the scalp with 10 per cent. tincture of iodine, and in two by surgical removal of the nails, curettage of the beds, and application of Dreuw's ointment.

1417. Rook (A. J.) & Frain-Bell (W.). **Cattle ringworm.**—*Brit. med. J., 1954,* pp. 1198–1200, 1954.

The literature on cattle ringworm is reviewed briefly. In Glamorgan and western Monmouthshire 39 cases were seen in dermatological out-patient clinics during 1950–53, and 38 of them gave histories of contact with cattle. The incidence was highest in the winter months, when it also reached a maximum in cattle. The majority of lesions appeared on the face, neck, scalp, arms, and hands, and the commonest types were agminate folliculitis and tinea circinata. Cultural studies were undertaken in some cases, of which two yielded *Trichophyton mentagrophytes* and the remainder *T. discoides*. Treatment consisted of manual epilation and compresses of potassium permanganate or mercury perchloride solutions, with sulphonamides for secondary infections. Fungicides, such as Whitfield's ointment, were used in the milder cases.

1418. Schneider (W.). **Favusepidemie durch Feldmäuse.** [A favus epidemic from field Mice.]—*Hautarzt,* 5, 8, pp. 348–351, 10 figs., 1954.

Particulars are given of an outbreak of favus (*Achorion* [*Trichophyton*] *quinckeanum*) introduced in January, 1952, into a research institute at Tübingen, Germany, through the infection of a dog by field mice. Four members of the staff developed either favus scutularis or favus herpeticus. Much later the laboratory mice also contracted infection through contaminated fodder. A seven-year-old girl from a village in the Black Forest also visited the University Skin Clinic in September of the same year on account of the identical complaint.

1419. Schönfeld (J.). **Vergleichende Laboratoriums- und klinische Untersuchungen über einige neuere Antimykotika gegenüber Farbstoffen bei oberflächlichen Dermatomykosen.** [Comparative laboratory and clinical studies on some of the newer antimycotics as contrasted with dyes for superficial dermatomycoses.]—*Derm. Wschr.,* 130, 48, pp. 1293–1298, 1954.

The results of *in vitro* and *in vivo* tests at the University Skin Clinic, Heidelberg, Germany, demonstrated the superiority of dyes, especially 1 and 2 per cent. brilliant green (alone or combined with Castellani's solution), to various new fungicidal preparations in the control of trichophytoses (*Trichophyton interdigitale* and other *T.* spp.) and thrush (*Candida albicans*). Gentian violet (2 per cent.) was also effective against *T. mentagrophytes* and *C. albicans*. Incidentally it was observed that the use of a plug saturated in brilliant or malachite green for sealing cultures prevented contamination by moulds.

1420. Schulz (K. H.), Rieth (H.), & Schirren (C.). **Klinische und mykologische Untersuchungen zur Frage der Haarpathogenität von Epidermophytie-Erregern.** [Clinical and mycological studies on the question of the pathogenicity to hair of agents of epidermophytosis.]—*Arch. Derm. Syph., Wien*, 198, 3, pp. 258–273, 8 figs., 1954.

Two out of three cases of follicular trichophytosis of the legs in women aged 37, 23, and 18 at the University Skin Clinic, Hamburg-Eppendorf, Germany, were found to be due to *Trichophyton interdigitale* [2, No. 895] and the third to *T. rubrum*. In a footnote mention is made of a further four similar cases, in three of which the agents had already been identified, *T. interdigitale* being implicated in one and *T. rubrum* in two.

1421. Sharpe (A.). **Interdigital dermatophytosis; a laboratory study.**—*J. nat. Ass. Chir.*, 42, 7, pp. 28–32, 1952.

Observations made on 200 unselected patients examined in private chiropodical practice in Philadelphia, of interdigital dermatophytosis and digital 'dermatitis' of the foot, showed that 96 cases were clinically positive and yielded 16 fungi, 10 from males with an average pH in the affected area of 6·9, and six from females with a corresponding average pH of 6·95. Cultures produced fungal growth in 64 cases from scraping of interdigital spaces. Sex appeared to be of no significance. Some 50 per cent. of the patients had some degree of interdigital eruption, which, the author considers, has been the basis of the high incidence of pedic dermatophytosis reported in numerous surveys. Interdigital dermatophytosis may be regarded as a dermatitis, but not all cases of interdigital dermatitis are of mycological origin. There are two separate disorders: (1) non-fungous interdigital dermatitis, and (2) interdigital dermatophytosis [chiefly *Trichophyton interdigitale*]. The latter disorder was represented by 16 cases, 10 positive fungal cases (25 per cent.) in adult males; and six in females (a little over 2·5 per cent.). Cultural investigation indicated a widespread presence of fungi in both normal and affected feet (32 per cent.), which supports the view that some strains of fungi are normal inhabitants of the foot, and set up dermatophytosis when favourable conditions prevail.

The positive diagnosis of interdigital dermatophytosis can be made only when fungi are microscopically demonstrated in the tissues. The disorder is not readily transmissible, as optimum conditions must also prevail in the new host. The condition may be defined as a state characterized by itching, maceration, and odour, with a more alkaline reaction of the affected part than is normal, and the demonstrated presence of growing fungi.

1422. Cremer (G.). **Schimmel-aandoeningen van de voeten.** [Fungal infections of the feet.]—*Ned. Tijdschr. Geneesk.*, 98, 36, pp. 2596–2606, 3 figs., 1954.

In connexion with the increasing prevalence in Holland of dermatomycoses of the feet and hands, caused mostly by *Trichophyton interdigitale* and *T. rubrum* [2, No. 393], a general survey is given of the available information on their symptomatology, differential diagnosis, course and prognosis, therapy, and prophylaxis.

1423. Ruther (H.) & Wiehl (R.). **Bromosalicyl-Chloranilid-Soventol, ein Beitrag zur Therapie behandlungserschwerter Epidermophytien.** [Bromosalicyl-chloranilide-soventol, a contribution to the therapy of epidermophytoses presenting difficulties of treatment.]—*Z. Haut- u. GeschlechtsKr.*, 18, 2, pp. 47–50, 1955.

Excellent results are reported from the Skin Clinic of Tübingen University, Germany, in the therapy of epidermophytoses (*Epidermophyton* and *Tricho-*

phyton spp., including *T. interdigitale*), complicated by eczema and bacterial superinfections, by topical application of 5-bromosalicyl-4-chloranilide combined with the antihistaminic soventol (N-phenyl-N-benzyl-4-amino-1-methylpiperidin), which is now on the market under the name of multifungin (Knoll-A.G., Ludwigshafen).

1424. Sullivan (M.), Bereston (E. S.), & Wood (J. L.). **Study of nutritional requirements of Trichophyton tonsurans.**—*Arch. Derm. Syph., Chicago*, 70, 1, pp. 84–90, 4 figs., 1954.

In a preliminary qualitative study at the Johns Hopkins Hospital, Baltimore, of the vitamin, nitrogen, and carbon requirements of *Trichophyton tonsurans*, 15 strains were tested with a large number of substrates, and the results are clearly tabulated, colony diameter at two, four, and eight weeks being the method used for classification. Thiamine was the only vitamin investigated found to be necessary for growth, while organic nitrogen (casein hydrolysate) promoted better development than inorganic. Hydroxyproline and sodium citrate inhibited growth.

1425. Hand (E. A.) & Georg (Lucille K.). **Trichophyton tonsurans ringworm.**—*J. Mich. St. med. Soc.*, 54, pp. 687–690, 727, 6 figs., 1 map, 1955.

Trichophyton tonsurans ringworm, the incidence of which has increased markedly of late in many parts of the United States [2, Nos. 170, 899], has been introduced into Michigan [1, No. 1476] by means of farm and foundry workers of Mexican origin and has spread from them to Negroes and Anglo-Americans, involving the scalp and glabrous skin. The disease constitutes an important public health problem, seeing that it is difficult to diagnose because the hairs do not fluoresce under a Wood's lamp and minimal scalp lesions may be readily confused with dandruff; it tends not to clear at puberty, persisting in adults as well as children; and is refractory to treatment as there is little tendency to inflammatory reaction.

1426. Vincent (A.) & Longueville (R.). **Les mycoses cutanées dans l'armée ; prophylaxie, traitement par l'association de crésol et d'ammonium quaternaire.** [Cutaneous mycoses in the Army; prophylaxis, treatment with cresol and quaternary ammonium.]—*Rev. Cps Santé milit.*, 9, 4, pp. 537–541, 1953.

Cutaneous epidermophytoses are stated to comprise about 70 per cent. of the skin diseases treated by the authors in French military personnel. They recommend a mixture of 3 per cent. cresol (glycolic penta-ethylene ether of dichlorocresol) and 1·5 per cent. quaternary ammonium in 100 gm. alcohol of 60°, which should be diluted to a third or a quarter strength for sensitive areas of the skin. Supplementary therapy should include the use of acid soaps and inert powders, e.g., 1 gm. boric acid and 15 gm. each of talcum and kaolin.

1427. Gonçalves (A. P.) & De Carvalho (L. P.). **Apreciação do teste intradérmico com a esporotriquina.** [Appraisal of intradermal test with sporotrichin.]—*An. bras. Derm. Sif.*, 29, 2, pp. 103–112, 3 figs., 1954. [English summary.]

At the Dermatological Clinic of the General Hospital, Rio de Janeiro, Brazil, the intradermal test with sporotrichin was performed on 33 patients with sporotrichosis (*Sporotrichum schencki*), 55 with other mycoses, and 94 with miscellaneous non-fungal dermatoses. Positive results (mostly strong) were obtained in all cases of sporotrichosis, particularly intensive reactions tending to be associated with the lymphangitic forms of the complaint. In two instances the test was still positive a year after cure. Positive reactors in the other two groups numbered 27 and 35, respectively, and in these cases the

responses were mostly weak to moderate. It is concluded that the sporotrichin test may be of value in the study of the allergic phenomena and immunity developed in sporotrichosis, and as an adjunct to diagnosis, but that it cannot replace cultural methods for the latter purpose.

1428. Mariat (F.). **Action de la nystatine, de la streptomycine et de la pénicilline sur la croissance de Sporotrichum schencki.** [Action of nystatin, streptomycin, and penicillin on the growth of *Sporotrichum schencki*.]—*Ann. Inst. Pasteur*, 88, 2, pp. 261–264, 1955.

Both in its parasitic and saprophytic phases, the growth of *Sporotrichum schencki* and its var. *beurmanni* on a synthetic liquid medium was inhibited by nystatin [mycostatin: 2, Nos. 791, 1069, 1441] at concentrations ranging from 8 to 16 μgm. per ml. Neither penicillin nor streptomycin exerted a comparable effect.

1429. Young (J. M.) & Ulrich (Elizabeth W.). **Sporotrichosis produced by Sporotrichum gougeroti; report of a case and review of the literature.**—*Arch. Derm. Syph., Chicago*, 67, 1, pp. 44–52, 1953.

Examination of a 33-year-old male admitted to the Kennedy Hospital, Memphis, Tennessee, for pulmonary tuberculosis showed a small subcutaneous cyst on the right wrist. Aspiration yielded creamy pus from which *Sporotrichum gougeroti* was obtained in large numbers. After two aspirations a sinus developed and was excised without recurrence. The morphology and cultural characteristics of the fungus are described in detail. It killed mice but did not appear to be pathogenic to guinea-pigs. The pertinent literature is fully surveyed.

1430. Ammann (A.), Gottlieb (D.), Brock (T. D.), Carter (H. E.), & Whitfield (G. B.). **Filipin, an antibiotic effective against fungi.**—*Phytopathology*, 45, 10, pp. 559–563, 2 graphs, 1955.

Filipin is a new antibiotic isolated from cultures of *Streptomyces filipinensis* n.sp., an occupant of Philippine soil. It inhibited after 48 hours the growth on a medium consisting of 1 per cent. glucose, 0·5 per cent. peptone, 0·1 per cent. yeast extract, and 2 per cent. agar (pH 6·8) of *Cryptococcus neoformans* at a concentration of 0·95 μgm. per ml.; of *Candida albicans*, *Histoplasma capsulatum*, *Microsporum audouini*, *Monosporium apiospermum* [*Allescheria boydii*], *Sporotrichum schencki*, and *Trichophyton rubrum* at 7·7; of *Coccidioides immitis* at 15; of *Hormodendrum compactum* [*Phialophora compacta*] and *P. verrucosa* at 15·5; and of *Geotrichum* sp., *Nocardia asteroides*, and *Blastomyces dermatitidis* at 31.

1431. Atsuji (C.), Yamamoto (K.), Yamada (J.), Kanayama (S.), & Bando (Y.). **The action of silver-streptolysin-sulfur-complex upon the growth of fungi.**—*Rep. Res. Inst. Tuberc., Kanazawa Univ.*, 12, 3, pp. 107–109, 1954. [Abs. in *Chem. Abstr.*, 49, 19, column 13366, 1955.]

In *in vitro* experiments at the Research Institute for Tuberculosis, Kanazawa University, Japan, silver-streptolysin-sulphur-complex, containing 100 mg. 1–N–F fraction of purified streptolysin-sulphur dissolved in 10 ml. distilled water and 1·52 ml. 0·1 *N* silver nitrate, the whole heated at 100° C., inhibited the growth of *Candida albicans* at a dilution of 1 in 64,000 but was ineffectual against *Trichophyton interdigitale*, *T. rubrum*, *T. asteroides* [*T. mentagrophytes*], *Achorion* [*T.*] *schoenleini*, and *Aspergillus oryzae*. The four *T.* spp. were suppressed by undecylenic acid at a dilution of 1 in 64,000, *A. oryzae* at 1 in 4,000, and *C. albicans* at 1 in 8,000.

1432. Emmons (C. W.). **The natural occurrence in animals and soil of fungi which cause disease in Man.**—*Proc. seventh int. bot. Congr., Stockholm, 1950*, pp. 416–421, 1953.

The natural occurrence of coccidioidomycosis (*Coccidioides immitis*), histoplasmosis (*Histoplasma capsulatum*), and sporotrichosis (*Sporotrichum schencki*) in animals and the isolation of the causal organisms and of *Allescheria boydii* from soil indicate that certain fungi causing human mycoses have a wide range of hosts and (in some cases, at least) an independent, saprophytic existence in soil. A review of the literature shows that a species of *Cryptococcus* and a fungus apparently identical with *Trichophyton mentagrophytes* have frequently been isolated from the viscera of animals in circumstances indicating mild pathogenicity, while *Aspergillus fumigatus*, *A. clavatus*, *Rhodotorula* sp., *Beauveria* sp., and *Microascus* spp. have repeatedly been isolated from animals in conditions suggesting recent contamination of the respiratory passages or, in the case of animals inoculated with soil suspensions, survival without growth in the animal body.

1433. Freeman (G. G.). **Further biological properties of trichothecin, an anti-fungal substance from Trichothecium roseum Link, and its derivatives.**—*J. gen. Microbiol.*, 12, 2, pp. 213–221, 1955.

The author describes the production of trichothecin in submerged aerated cultures of a strain of *Trichothecium roseum* at Imperial Chemical Industries, Stevenston, Ayrshire. The antibiotic was active *in vitro* at 16 p.p.m. or less against *Blastomyces dermatitidis*, *Torulopsis* [*Cryptococcus*] *neoformans*, *Candida albicans*, *Hormodendrum langeroni*, *Histoplasma capsulatum*, *Epidermophyton floccosum*, *Trichophyton rubrum*, *T. interdigitale*, *T. sulphureum*, *T. mentagrophytes*, and *Microsporum canis*, this property being unaffected by the presence in the medium of 5 per cent. blood serum. Single doses of trichothecin at 250 μgm. per kg. were lethal when applied intravenously in mice and subcutaneously in rats. The antibiotic also acted as an irritant when brought into contact with human or animal skin. The anti-fungal activity of a series of esters related to trichothecin was of the same order as that of the parent substance.

1434. Grimmer (H.). **Antibiotika und Pilzerkrankungen der Haut und Schleimhaut.** [Antibiotics and mycoses of the skin and mucous membrane.]—*Antibiotika et Chemotherapia, Fortschr., Basel*, 1, pp. 180–234, 23 figs., 1954.

This exhaustive critical discussion of the connexion between antibiotic therapy and various dermatomycoses (including those caused by *Trichophyton* and *Epidermophyton* spp.) and moniliasis (*Candida* spp., especially *C. albicans* [cf. below, No. 1579]) is based on personal experience at the Skin Clinic of the Free University, Berlin, and a study of 137 contributions to the relevant literature.

1435. Henington (V. M.) & Kennedy (C. B.). **Deep mycotic infections of the skin.**—*Sth. med. J., Ala.*, 47, 1, pp. 17–26, 8 figs., 1954.

The authors discuss, with special reference to diagnosis and therapy, nine cases of chromoblastomycosis (eight caused by *Hormodendrum* [*Phialophora*] *pedrosoi*, one by *P. verrucosa*), two of sporotrichosis (*Sporotrichum schencki*), six of actinomycosis (*Actinomyces bovis* [*A. israeli*] was isolated from one), one of nocardiosis (*Nocardia asteroides*), and one of cryptococcosis (*Cryptococcus neoformans*), studied in little over three years at the Louisiana State University School of Medicine, New Orleans. All nineteen cases were observed in the New Orleans area. A number of cases of cutaneous North American blastomycosis

(*Blastomyces dermatitidis*) that came under observation during the same period are also reviewed. It is apparent that, at least in the locality concerned, deep mycotic infections of the skin are not rare. Attention is drawn to the fact that the diagnosis of these diseases depends upon laboratory investigation and they will continue to be overlooked unless provision is made for the definite examination of fungi by cultural methods.

1436. Hosoya (S.), Soeda (M.), Kamatsu (N.), Imamura (K. S.), Okada (K.), Nakazawa (S.), & Yamaguchi (T.). **Trichomycin, ein neues Antibioticum aus Streptomyces hachijoensis mit trichomonadicider und antibiotischer Wirksamkeit.** [Trichomycin, a new antibiotic from *Streptomyces hachijoensis* with trichomonadicidal and antibiotic activity.]—*Aerztl. Forsch.*, 9, 1, pp. 46–49, 1955. [English summary.]

At the Institute for Infectious Diseases, University of Tokyo, Japan, a yellow antibiotic isolated from the mycelium and culture filtrate of *Streptomyces hachijoensis* inhibited the growth of *Trichophyton mentagrophytes* and *Candida albicans* on Sabouraud's glucose bouillon at 37° C. at concentrations of 100 and 0·005 per ml., respectively, and further proved useful in clinical trials against infections associated with these organisms.

1437. Königsbauer (H.). **Über die Wirkung der chronischen Colchicinvergiftung auf experimentelle Mykosen.** [On the effect of chronic colchicin poisoning on experimental mycoses.]—*Experientia*, 11, 4, pp. 146–147, 1955. [English summary.]

At the author's private laboratory, Knittelfeld, Austria, rats injected intraperitoneally with colchicin at dosages of 35 to 50γ per 100 gm. body weight, daily or every other day, were inoculated on the 10th day with material from cultures of *Nocardia asteroides*, *N. leishmanii* [2, No. 679], or *Torula histolytica* [*Cryptococcus neoformans*] on a liquid Czapek-Dox medium enriched with 5 gm. peptone-proteose. The operation resulted in a diffusion of infection with numerous granulomata, similar to that induced by cortisone. No such effects were observed in the control series without colchicin.

1438. Larkin (J. C.) & Phillips (S.). **Coexistent pulmonary tuberculosis and fungal disease. A review of the literature and three additional cases.**—*Amer. Rev. Tuberc.*, 72, 5, pp. 667–674, 3 figs., 1955. [Spanish and French summaries.]

Following a review of 16 contributions to the literature on associated pulmonary tuberculosis and fungal disease, the writers present from the Kennedy Veterans Hospital, Memphis, Tennessee, three additional cases in 37-, 46-, and 30-year-old patients involving, respectively, *Cryptococcus hominis* [*C. neoformans*], *Histoplasma capsulatum* [cf. below, No. 1537], and *Coccidioides immitis*, and it is concluded that the prognosis in such cases of dual infection is poor. Attention is drawn to the possibility that certain anti-fungal therapeutants may exert an adverse effect on the co-existent tuberculosis.

1439. Penta (A. Q.). **The mycotic infections of the bronchial-pulmonary tract.**—*Amer. J. Surg.*, 90, 1, pp. 77–91, 19 figs., 1955.

This is a useful review, based on the author's experience at the Ellis and St. Clare's Hospitals, Schenectady, New York, and the Temple University Medical School, Philadelphia, and 39 contributions to the relevant literature, of essential information on the symptoms, etiology, diagnosis, and therapy of bronchomoniliasis (*Monilia* [*Candida*] *albicans*), torulosis (*Torula histolytica*) [*Cryptococcus neoformans*], blastomycosis (*Blastomyces* [*dermatitidis*]), coccidioidal granuloma (*Coccidioides immitis*), histoplasmosis (*Histoplasma capsulatum*),

sporotrichosis [*Sporotrichum schencki*], aspergillosis (*Aspergillus fumigatus*, *A. flavus*, and *A. niger*), and actinomycosis (*Actinomyces* [*israeli*] or *Nocardia* spp.). Emphasis is laid on the close resemblance between this type of infection and that of pulmonary tuberculosis; the unrealized frequency of mycoses and the necessity of considering this possibility in obscure lung diseases; the indispensability of laboratory methods for early diagnosis; and the prompt institution of anti-fungal therapy, supplemented in appropriate cases by pulmonary resection.

1440. Smith (D. T.). **The diagnosis and therapy of mycotic infections.**—*Bull. N.Y. Acad. Med.*, 29, 10, pp. 778–795, 1 map, 1 graph, 1953.

Information is presented and tabulated on the origin and natural sources of the endogenous and exogenous mycoses, their geographical distribution (with special reference to the United States), clinical diagnosis, and therapy.

1441. Visy (J. L.). **À propos des thérapeutiques antifongiques récentes.** [In connexion with recent therapeutic antimycotics.]—*Thérapie*, 10, 1, pp. 180–194, 1955.

From a study of the relevant literature the author selects the following groups of antimycotics as the most promising for clinical use: (1) fatty acids and their derivatives, especially undecylenic acid; (2) benzothiazoles, particularly asterol; (3) esters of parahydroxybenzoic acid (parabens); and (4) antibiotics with a selective anti-fungal action, notably fungicidin and nystatin [mycostatin: see below, No. 1523].

1442. Andleigh (H. S.). **Actinomycosis with special reference to streptomycin sensitivity.**—*J. Indian med. Ass.*, 24, 15, pp. 597–598, 1955.

Two discharging sinuses which developed on the left side of the face of a 30-year-old male at Jaipur, India, were found to be caused by *Actinomyces bovis* [*A. israeli*]. At the local S.M.S. Hospital they were completely cured by a 10-day course of procaine-penicillin therapy. In *in vitro* tests the growth of the organism on a thioglycollate liquid medium was inhibited by the addition of 30 units penicillin or 40 μgm. streptomycin, of which the latter is considered likely to prove the more useful in practice.

1443. Barter (A. P.) & Falconer (M. A.). **Actinomycosis of the brain. Report of a successfully treated case.**—*Guy's Hosp. Rep.*, 104, 1, pp. 35–45, 2 figs., 1955.

This is a joint report from Charing Cross and Guy's Hospitals, London, on the complete surgical excision of a large temporal lobe abscess produced by *Actinomyces israeli* in a 22-year-old Chinese female. There was no evidence of infection in any other part of the body. Reference is made to 34 contributions to the relevant literature, five of which are also concerned with the successful treatment of similar cases by surgery.

1444. Bobbitt (O. B.), Friedman (I. H.), & Lupton (C.). **Nocardiosis. Report of three cases.**—*New Engl. J. Med.*, 252, 21, pp. 893–897, 3 figs., 1955.

Three cases of nocardiosis are described from the University of Virginia Medical School, Charlotteville. A 50-year-old man suffering from the disseminated form was treated with massive doses of penicillin but succumbed. A draining sinus in the buttock suggested that this might have been the portal of entry of the causal organism, *Nocardia asteroides*. A 55-year-old negress, also treated with penicillin, died from abscess of the brain. She also had a lesion on the right hand from which *N. asteroides* was isolated. The third patient, a 61-year-old farmer with pulmonary infection from which *N. brasiliensis*

[1, No. 1306; 2, Nos. 466–468] was isolated, was treated with penicillin and sulphadiazine and showed a great improvement five months later.

1445. Clapp (Mary P.) & Williams (Marjorie J.). **Nocardiosis : discussion of two cases with emphasis on diagnostic features.**—*Texas Rep. Biol. Med.*, 13, 1, pp. 11–22, 6 figs., 1955.

Two fatal cases of nocardiosis (*Nocardia asteroides*) in 28- and 29-year-old men are reported from the Veterans Administration Center, Temple, Texas. In neither case was nocardiosis considered during life, but the diagnosis was established at autopsy by cultural and histological studies. In the first patient an abscess of the brain was considered to be probably secondary to pulmonary infection by the fungus, while in the second the lungs were also involved with dissemination. The organism recovered from both cases was white, rough, and firmly adherent to the medium, thus differing considerably from the classical descriptions. As the disease is usually amenable to sulphonamide in its earlier stages, the possibility of its presence should be considered in cases of obscure chronic infection.

1446. Dechaume (M.), Carlier (G.), Goudaert (M.), & Beerens (H.). **L'actinomycose cervico-faciale, maladie et syndrome.** [Cervico-facial actinomycosis, disease and syndrome.]—*Rev. Stomat., Paris*, 56, 1, pp. 1–33, 11 figs., 1955.

The bacteriological part of this important study on the etiology of cervico-facial actinomycosis was carried out at the Institut Pasteur, Lille. Material from 32 human and four bovine cases yielded 10 isolates of *Actinomyces israeli* (the designation *A. bovis* is not accepted), with yellow granules in five. *A. israeli* is regarded as the only actual pathogen in the disease, the *Actinomyces*-like organisms predominating in the actinomycosis syndrome (18 out of 32) having failed to reproduce the symptoms in laboratory animals. Common pyogenic bacteria appear to contribute occasionally to the development of the syndrome (three times in the cases under observation).

1447. Dechaume (M.), Carlier (G.), Goudaert (M.), & Beerens (H.). **L'actinomycose cervico-faciale et ses problèmes. Aspect clinique ; Aspect bactériologique.** [Cervico-facial actinomycosis and its problems. Clinical aspect. Bacteriological aspect.]—*Pr. méd.*, 63, 22, pp. 448–452, 12 figs. (7 col.), 1955.

This is an important study, contributed jointly by the three first-named authors from the Hôpital de la Pitié, Paris, and the Hôpital de la Charité, Lille, and by the last-named from the Institut Pasteur, Lille, on the clinical and mycological aspects and diagnosis of cervico-facial actinomycosis in man and cattle [2, No. 1446], and on the taxonomy of its agents, *Actinomyces israeli* and various *Actinomyces*-like organisms, including *Actinobacillus actinomycetemcomitans* [2, No. 1172].

1448. Delaveau (P.) & Brion (S.). **Traitement actuel des actinomycoses et des nocardioses.** [Current treatment of actinomycoses and nocardioses.]—*Thérapie*, 10, 1, pp. 87–95, 1955. [English and Spanish summaries.]

This survey of existing methods for the treatment of actinomycosis (*Actinomyces israeli*) and nocardiosis (*Nocardia asteroides*) is based on a perusal of 83 contributions to the relevant literature and personal experience. In view of the lengthy and difficult process of identification of these organisms, it is advisable to institute temporary treatment with a combination of penicillin and sulphadiazine, which is effective against both.

1449. Dorph-Petersen (L.) & Pindborg (J. J.). **Actinomycosis of the tongue; report of a case.**—*Oral Surg.*, 7, 11, pp. 1178–1182, 5 figs., 1954.

A case of actinomycosis of the tongue is reported from the University Hospital and the Royal Dental College, Copenhagen, Denmark. A swelling appeared on the left side of the dorsum linguae in a 27-year-old male who had never been engaged in agricultural work. The pus yielded a rare form of *Actinomyces israeli* which failed to grow on blood agar. The lesion was successfully treated with intramuscular penicillin injections.

1450. Fabian (G.) & Staufenbiel (A.). **Über Diagnose und Therapie der Lungenaktinomykose des Menschen.** [On the diagnosis and therapy of human pulmonary actinomycosis.]—*Aerztl. Forsch.*, 9, 1, pp. 42–46, 1955.

Following an introductory survey of prevailing concepts with regard to various aspects of pulmonary actinomycosis (*Actinomyces* Wolff-Israel) [*A. israeli*], the authors describe two cases of the disease in male patients, aged 59 and 53, at the St. Elisabeth Hospital, Halle (Saale), Germany. The former responded favourably to combined surgical intervention and penicillin therapy and the latter to penicillin, elkosin [1, Nos. 861, 2239], and streptomycin.

1451. Porter (I. A.). **Actinomycosis.**—*Practitioner*, 174, 1040, pp. 224–226, 1955.

Up-to-date information on actinomycosis (*Actinomyces israeli*) is presented under the headings of definition, bacteriology, mode and site of infection, clinical features (of the cervico-facial, abdominal, and thoracic forms), and prognosis and treatment.

1452. Floch (H.). **Existence de l'actinomycose humaine en Guyane française.** [Existence of human actinomycosis in French Guiana.]—*Bull.Soc. Path. exot.*, 48, 1, pp. 7–9, 1955.

Actinomyces bovis [*A. israeli*] was isolated from the pus of an abscess on the right hypochondrium of a 40-year-old male native of French Guiana in 1953, this being apparently the first record from the colony.

1453. Testard (E.), Mariat (F.), Gaches (J.), & Le Beau (J.). **Abcès cérébraux multiples dûs à une espèce inhabituelle de Nocardia.** [Multiple cerebral abscesses due to an unusual species of *Nocardia*.]—*Rev. neurol.*, 91, 2, pp. 92–101, 6 figs., 1954.

A full description is given of the clinical and surgical aspects and autopsy findings in a case of multiple cerebral abscesses in a 38-year-old metallurgical worker at the Hôpital Lariboisière, Paris. The species of *Nocardia* isolated from the abscesses differed in certain cultural characters from *N. asteroides* [see next entry.]

1454. Mariat (F.), Hazen (E[lizabeth] L.), Le Beau (J.), & Testard (E.). **Nocardiose humaine à abcès cérébraux multiples: étude bactériologique.** [Human nocardiosis with multiple cerebral abscesses: bacteriological study.]—*Ann. Inst. Pasteur*, 88, 2, pp. 256–261, 1955.

From a study of the morphology, cultural and physiological characters, and pathogenicity to laboratory animals of the *Nocardia* referred to in the previous entry the authors conclude that it is, in fact, *N. asteroides* [cf. 2, No. 937]. Such differences as exist between this strain and the type species would entitle it at the most to varietal rank.

1455. Van de Kamp (J.). **Spondylitis actinomycotica.** [Actinomycotic spondylitis.]—*Ned. Tijdschr. Geneesk.*, 99, 3, pp. 233–235, 1955.

A case is reported of spondylitis due to *Actinomyces* [*israeli*] in a 42-year-old

factory-worker at Utrecht, Holland. From a perusal of the relevant literature it appears that actinomycosis very rarely involves the vertebral column. A cure was effected by the oral administration of three sulpha drugs (diazine, mesathine, and merazine) in equal quantities (6 gm. daily) combined with intramuscular injections of penicillin (4 × 100,000 units per diem) over a period of three weeks.

1456. Mannes (P.), Derriks (R.), & Nicaise (R.). **Infiltrat rond et empyème actinomycosiques.** [An actinomycotic round infiltrate and empyema.]—*J. franç. Méd. Chir. thor.*, 9, 2, pp. 142–147, 5 figs., 1955.

The authors report from Brussels a case of actinomycotic empyema [*Actinomyces israeli*] in a 44-year-old male, originating with a small, circular, well-defined infiltrate closely simulating a tubercular focus or a peripheral neoplasm, at the base of the right lung. A complete cure was effected by means of streptomycin, penicillin, and a sulphamide (Bayer's solusupronal).

1457. Vaucher (E.), Forster (E.), Greff (C.), Roegel (E.), & Le Gal (Y.). **Remarques sur l'actinomycose thoracique. À propos d'un cas d'envahissement pneumo-costo-diaphragmatique, traité par extirpation de la lésion et suivi de guérison apparente.** [Observations on thoracic actinomycosis. In connexion with a case of pneumo-costo-diaphragmatic invasion treated by extirpation of the lesion and followed by apparent cure.]—*J. franç. Méd. Chir. thor.*, 9, 2, pp. 147–156, 6 figs., 1955.

An operation performed on a 44-year-old male at Strasbourg, France, for the removal from the costo-diaphragmatic region of the left lung of a compact, white to yellowish, lardaceous tumour formed by *Actinomyces israeli* [cf. preceding abstract] was completely successful. The case is presented as illustrating two of the essential problems of pulmonary actinomycosis (a rare form of the disease, representing only 15 per cent. of all localizations), namely, the difficulty of diagnosis and the choice of treatment.

1458. Glahn (M.). **Cervico-facial actinomycosis—etiology and diagnosis. The pathogenesis of cervico-facial actinomycosis.**—*Acta chir. scand.*, 108, 2–3, pp. 183–204, 1954.

Further studies on cervico-facial actinomycosis are reported from two Copenhagen hospitals [1, No. 2064], eight out of 90 cases being reported in detail. They were so divergent as to preclude the conventional assignment of human actinomycosis to infection by *Actinomyces israeli* alone. Two further groups of anaerobic organisms (III) and (IV), are added to those already described as implicated in the etiology of the cervico-facial form of the disease [cf. 2, No. 144], while other actinomycetes were also detected which did not correspond to any of the existing categories and are designated 'X'-types.

Flourishing in the human mouth, the actinomycetes gain entrance into various bone cavities providing good conditions for anaerobic growth, e.g., dentigerous cysts, impacted teeth, jaw fractures, empty alveoli, or peri-apical osteitis, where they increase in numbers and virulence and ultimately invade the soft tissue. Pathogenic organisms were isolated from dental foci in five cases, and in 72 the presence of foci was demonstrated by clinical or radiological examination.

1459. Suter (L. S.) & Vaughan (B. F.). **The effect of antibacterial agents on the growth of Actinomyces bovis.**—*Antibiot. & Chemother.*, 5, 10, pp. 557–560, 1955.

Of 26 anti-bacterial agents tested *in vitro* at the Veterans Administration

Medical Teaching Group Hospital, Memphis, Tennessee, for their effects on three strains of *Actinomyces bovis* in brain-heart infusion with 0·1 per cent. agar, the most active was erythromycin, which markedly inhibited growth at the minimum concentration of 0·005 μgm. per ml. and prevented it completely at 0·05 μgm. Next in order of efficiency came bacitracin and carbomycin. No differences were observed between the strains in respect of their reaction to any one substance.

1460. Goodman (J. J.), Matrishin (M.), & Backus (E. J.). **The effect of anhydrochlortetracycline on the growth of actinomycetes.**—*J. Bact.*, 69, 1, pp. 70–72, 1 diag., 1955.

In *in vitro* experiments at the Lederle Laboratories Division, American Cyanamid Company, Pearl River, New York, anhydrochlorotetracycline [aureomycin] was highly specific against actinomycetes (14 species of *Streptomyces* and *Nocardia asteroides*) tested on asparagine glucose agar and liquid maize steep sucrose medium. In liquid culture all the actinomycetes tested were completely inhibited by 1 μgm. per ml., while the closely related antibiotics chlorotetracycline, oxytetracycline, and tetracycline showed a much lower activity. Preliminary data indicated that the anhydrochlorotetracycline showed no obvious toxicity to mice at doses of 160 mg. per kg.

1461. Hanf (Ursula) & Hanf (G.). **Ein Beitrag zum Infektionsmodus der weiblichen Genitalaktinomykose.** [A contribution to the mode of infection of female genital actinomycosis.]—*Geburtsh. u. Frauenheilk.*, 15, 4, pp. 366–374, 1955.

Following a survey of the available information on the very rare complaint of genital actinomycosis (*Actinomyces israeli*) in the female, of which there appear to be only slightly over 100 cases on record, the authors discuss some possibilities regarding the mode of infection.

1462. MacCarthy (Joan). **Actinomycosis of the female pelvic organs with involvement of the endometrium.**—*J. Path. Bact.*, 69, 1, 2, pp. 175–179, 2 figs., 1955.

A woman aged 70 was admitted to hospital for removal of a perforated appendix. A year later the infection had spread to the pelvic organs on which many colonies of *Actinomyces* were seen. Treatment with aureomycin combined with surgical drainage of actinomycotic abscesses resulted in recovery.

1463. Kargl (O. L.). **Rippenveränderung bei Actinomycose.** [Changes in the ribs in actinomycosis.]—*Radiol. clin., Basel*, 24, 1, pp. 28–29, 2 figs., 1955. [English and French summaries.]

Permanent bony changes in a rib in a case of apparently healed actinomycosis [*Actinomyces israeli*] in a young man are reported from the Roentgen Department, University of Texas.

1464. McCormack (L. J.), Dickson (J. A.), & Reich (A. R.). **Actinomycosis of the humerus.**—*J. Bone Jt. Surg.*, 36–A, 6, pp. 1255–1258, 4 figs., 1954.

Details are given of a case of actinomycosis of the humerus in a white male aged 44 who entered the Cleveland Clinic, Ohio, in March, 1952, with a history of progressive pain in the right arm of three months' duration. The hand was swollen and could not be closed. Roentgenographic examination of the right humerus revealed the medullary cavity in the mid-shaft of the humerus to be widened and irregularly radiolucent. In the right upper lung field there was some increase in bronchial and vascular markings.

Frozen sections of tissue from the affected part demonstrated the presence

of a ray fungus. The organism grew as small, white, fluffy, discrete colonies in the anaerobic portions only of thioglycollate broth tubes. On tryptose-proteose-peptone agar plates containing 1 per cent. dextrose it formed minute, faintly yellow, round, smooth, opaque colonies which did not penetrate the medium. While the fungus appeared to possess morphological features of *Actinomyces israeli* on liquid media it is referred to *A. bovis* on account of its appearance on solid media.

Massive penicillin therapy was instituted, the total dosage administered being 31,800,000 units. The patient was also given a total dosage of 60 drops of a saturated solution of potassium iodide daily for almost four months. Roentgenograms made after 18 months showed an apparently healed lesion.

1465. Rothfield (N. J.). **Actinomycosis of the chest wall.**—*Proc. roy. Soc. Med.*, 47, 2, pp. 127–128, 1 fig., 1954.

A boy of nine years was admitted to the Royal Alexandra Children's Hospital, Brighton, with one month's history of cough and shortness of breath. These symptoms became worse and he lost weight. He complained of pain over the back of the chest on the left side, and a tender rounded non-fluctuant swelling about three inches in diameter was seen. Biopsy yielded 'sulphur granules' and *Actinomyces bovis* [*A. israeli*] was cultured. Treatment with penicillin, supplemented by sulphadiazine and potassium iodide, and later with streptomycin and iodides led to improvement and at the time of writing was being continued.

1466. McQuown (A. L.). **Actinomycosis and nocardiosis.**—*Amer. J. clin. Path.*, 25, 1, pp. 2–13, 13 figs., 1955.

In this contribution to a symposium on diseases caused by fungi at the International Congress of Clinical Pathology in Washington, D.C., in September, 1954, the author reviews the classification, morphology, and cultural characteristics of the actinomycetes and the clinical findings, pathology, diagnosis and treatment of the diseases they cause. *Actinomyces israeli* is described as the principal cause of human actinomycosis and *A. bovis* as a bovine strain, possibly causing the disease. The prognosis is said to vary from good to excellent, treatment by sulphonamides and penicillin being preferred. The possibility of the confusion of pulmonary nocardiosis with tuberculosis is stressed; many of the former cases are thought to be sent to sanatoria where there is grave risk of tuberculosis being contracted.

1467. Erikson (Dagny) & Porteous (J. W.). **Commensalism in pathogenic anaerobic Actinomyces cultures.**—*J. gen. Microbiol.*, 13, 2, pp. 261–272, 21 figs., 1955.

In a study at the Department of Bacteriology, Aberdeen University, a strain of *Actinomyces israeli* underwent a change both in colony growth and microscopic characters after about eighteen months serial subculture in a glucose heart-broth casein digest medium. It was found that the culture was contaminated with a staphylococcus, which remained trapped in the mycelium and was transmitted with the fungus at subculture, giving rise to smoother growth. The situation was clarified by micromanipulation and by deliberately mixing certain bacteria with *A. israeli*, and it is suggested that the appearances of certain smooth cultures may be due to the fact that they may contain commensal organisms.

1468. Fey (H.), Holm (P.), & Teuscher (E.). **Nocardiosen. Kasuistische Mitteilung über einen Fall von septischer Nocardiose beim Hund und zwei Fälle von Nocardia-Abortus beim Rind.** [Nocardioses. Note on a case of septic

nocardiosis in the Dog and two cases of *Nocardia* abortion in Cattle.]—*Schweiz. Arch. Tierheilk.*, 96, 11–12, pp. 642–648, 3 figs., 1954. [French, Italian, and English summaries.]

This is a joint report from the Veterinary-Bacteriological and Veterinary-Pathological Institutes of the University of Zürich and from the State Serum Institute, Copenhagen, on the cultural and morphological characters and the pathogenicity to laboratory animals of three strains of *Nocardia asteroides*, one causing multiple abscesses, pleurisy, and peritonitis in a dog [2, Nos. 951–953 and next entries], while the two others were responsible for abortion in cattle.

1469. Blake (W. P.). **A report of two canine cases of nocardiosis in Missouri.**—*J. Amer. vet. med. Ass.*, 125, 933, pp. 467–468, 1954.

Two cases of infection by *Nocardia asteroides*, one in a three-month-old cocker spaniel and the other in a six-month-old collie [cf. preceding and next entries], are reported from the Department of Veterinary Medicine and Surgery, University of Missouri, Columbia. Both animals were treated for 'distemper complex', the diagnosis of nocardiosis being made only after death. Attempts to reproduce the disease experimentally in dogs resulted only in transient abscess formation and it is suggested that the disease is rarely fatal except when superimposed on some other condition.

1470. Brodey (R. S.), Cole (E. J.), & Sauer (R. M.). **Nocardial mycetoma in a Dog.**—*J. Amer. vet. med. Ass.*, 127, 944, pp. 433–434, 1 fig., 1955.

A case of chronic subcutaneous infection in the left hind leg of a nine-year-old male pointer is reported from the School of Veterinary Medicine, University of Pennsylvania, Philadelphia. A species of *Nocardia* [cf. preceding entries] was isolated on Sabouraud's agar at 37° C. and inoculated intraperitoneally into mice with positive results.

1471. Munch-Petersen (E.). **Actinomyces (Nocardia) sp. from a bovine udder infection.**—*Aust. vet. J.*, 30, pp. 297–300, 1 fig., 1954.

A description is given of a natural case of bovine mastitis caused by a fungus closely related to, if not identical with, *Nocardia asteroides*, occurring in a mature cow in Australia. Inoculation of another mature cow with the same strain via the teat canal into the right fore and right hind quarters was effected. Next day, the secretion from these quarters was still normal, though the organism was readily found microscopically and on culture. From the second day until the seventh week, when the animal was slaughtered, the secretion from these two quarters contained greenish-grey clots and the cell count was high. After slaughter of the cow, external examination of the right fore quarter showed it to be hard, cordy, and nodular, though the right hind quarter was almost normal, except for a hard, nodular area in the dividing-wall between it and the right fore quarter. On section both quarters were normal, except where pus-filled nodular abscesses, 0·5 to 10 mm. in diameter, were formed.

1472. Reiss (F.) & Briggs (Mary E.). **Cultural studies of four pathogenic Nocardia.**—*Schweiz. Z. allg. Path. Bakt.*, 18, 2, pp. 129–143, 4 figs., 1955.

Amended descriptions are given of *Nocardia keratolytica* and *N. transvalensis*, cultures of which were supplied by the London Type Culture Collection, and of two unidentified species of the same genus, one isolated from a mycetoma in Paraguay and the other from a brain abscess at the Ohio State Hospital, Columbus.

1473. Di Menna (Margaret E.). **A quantitative study of air-borne fungus spores in Dunedin, New Zealand.**—*Trans. Brit. mycol. Soc.*, 38, 2, pp. 119–129, 1 graph, 1955.

Air-borne moulds in the city area of Dunedin, New Zealand, were estimated quantitatively by exposing agar plates in a Manning slit sampler between March, 1953, and April, 1954. A total of 2,373 colonies was isolated from 170 cu. ft. of air, similar counts being obtained from August to October and the highest (25·1) from January to March. *Cladosporium* occurred most frequently (42·9 per cent.), followed by *Penicillium* (34·2).

Yeast estimates made during the same period, but indoors only, showed the average density of viable species to be one or two cells or clumps of cells per 2 cu. ft. of air. Most of the 431 isolates fell into the following major groups; *Debaryomyces* spp. (including the imperfect forms *Torulopsis candida* and *T. famata*), 26·2, non-pathogenic *Cryptococcus* spp., 42; the *Sporobolomyces-Rhodotorula* group, 18·6; and the yeast-like phase of *Cladosporium*, 9·5. *Cryptococcus diffluens* and *D. kloeckeri* together accounted for 46 per cent. (128 and 70 isolates, respectively). None of the yeasts showed a marked seasonal distribution.

1474. Evans (T.) & Ruiz (A.). **Mycological flora of the air in San José, Costa Rica, Central America.**—*Ann. Allergy*, 13, 2, pp. 189–190, 1955.

From March to August, 1954, 453 strains of moulds were trapped on potato agar (with the addition of tartaric acid to inhibit bacterial growth) from the air at San José, Costa Rica, each dish being exposed for five minutes, usually in the morning, on the roof of a three-story building. The isolates were subsequently transferred to Sabouraud's glucose agar. The most prevalent genus was *Cladosporium*, represented by 254 isolates (51·6 per cent.), followed by *Penicillium* with 60 (13·2), and *Aspergillus* with 23 (5). Among the other genera identified were *Streptomyces*, *Rhodotorula*, *Mucor*, *Trichoderma*, *Fusarium*, *Helminthosporium*, *Rhizopus*, *Paecilomyces*, *Graphium*, *Phialophora*, *Stemphylium*, and *Trichothecium*.

1475. Vanbreuseghem (R.) & Bernaerts (J. P.). **Production expérimentale de grains maduromycosiques par Monosporium apiospermum et Allescheria boydii.** [Experimental production of maduromycotic granules by *Monosporium apiospermum* and *Allescheria boydii*.]—*Ann. Soc. belge Méd. trop.*, 35, 4, pp. 451–456, 6 figs., 1955. [Flemish summary.]

At the Institute of Tropical Medicine, Antwerp, the intratesticular inoculation of guinea-pigs and rats (the latter being the more suitable for the purpose) with conidia (= *Monosporium apiospermum*) and ascospores of *Allescheria boydii* resulted in the formation of incipient maduromycotic granules similar to those occurring in man. These did not, however, attain full development, marked by the presence of clavate hyphae terminating in chlamydospores at their swollen extremities, unless ascospores were used as inoculum.

1476. Defoort (R.), Kaivers (R.), & Vanbreuseghem [R.]. **Aspergillose vésicale.** [Vesical aspergillosis.]—*Acta urol. belg.*, 23, 1, pp. 100–102, 1 fig., 1955.

A case of aspergillosis (*Aspergillus* sp.) of the bladder in an 80-year-old male at Antwerp is considered to be of special interest in view of the rarity of the condition in the urinary and genital systems.

1477. Mahoudeau (D.), Lemoine (J. M.), Poulet (J.), & Dubrisay (J.). **Mycoses respiratoires pseudo-tumorales : aspergillose et géotrichose.** [Respiratory

pseudo-tumoral mycoses (aspergillosis and geotrichosis).]—*J. franç. Méd. Chir. thor.*, 9, 1, pp. 53–61, 12 figs., 1955.

Two cases of respiratory disease presenting similar radiological aspects are reported from Paris, one in a 59-year-old female and the other in a 47-year-old male. Cultures from the former patient yielded *Aspergillus fumigatus* and those from the latter *Geotrichum candidum* [2, Nos. 1252, 1355].

1478. Jackson (I. J.), Earle (K.), & Kuri (J.). **Solitary Aspergillus granuloma of the brain ; report of 2 cases.**—*J. Neurosurg.*, 12, 1, pp. 53–61, 3 figs., 1955.

Two fatal cases of supposed *Aspergillus fumigatus* granuloma of the brain are reported from the John Sealy Hospital, Galveston, Texas. A 36-year-old male patient had the entire right frontal lobe replaced by a hard tumour, while a 22-year-old girl had a similar tumour on the floor of the left orbital cavity. Both patients had experienced symptoms of increasing severity for a number of years, necessitating surgical intervention. Diagnosis was based on the finding of septate mycelium in the tumours; attempts at culture were unsuccessful. It was considered that the fungus gained entrance through the orbit or sinus in the case of the male, and through an orbital injury in the female.

1479. Pesle (G.-D.). **Les grains mycosiques dans la pathologie respiratoire. A propos d'un cas personnel.** [Mycotic granules in respiratory pathology. In connexion with a personal case.]—*J. franç. Méd. Chir. thor.*, 9, 1, pp. 61–66, 5 figs., 1955.

In connexion with his observations on respiratory illnesses in Paris, with particular reference to the presence of *Candida albicans* [cf. 2, No. 1061] on the tonsil of a young male who had undergone lobectomy for pulmonary tuberculosis, the writer draws attention to the different sites occupied by this fungus and *Aspergillus* [2, No. 955]. The former is uniformly found on the large bronchus or the tonsils and the latter in the distal bronchi.

1480. Rominger (L.) & Böhm (F.). **Über einen Fall von generalisierender pyämischer Aspergillose.** [On a case of generalized pyaemic aspergillosis.]—*Beitr. Klin. Tuberk.*, 113, 3, pp. 221–233, 4 figs., 1955.

This is a detailed report from the Überruh Sanatorium, Isny im Allgau, Württemberg, Germany, of the clinical course and post-mortem findings in a case of generalized septicaemic aspergillosis caused by *Aspergillus glaucus* in a 30-year-old female patient. The original diagnosis (made at another institution) was tuberculosis of the lungs and hip joint, and the true source of infection was only discovered at the autopsy.

1481. Schnapka (O.). **Generalisierte superficielle Aspergillose unter dem Bilde einer 'seborrh. Erythrodermie'.** [Generalized superficial aspergillosis in the guise of a 'seborrhoeic erythrodermia'.]—*Z. Haut- u. Geschlechtskr.*, 18, 6, pp. 159–162, 4 figs., 1955.

A superficial aspergillosis (*Aspergillus flavus*) involving all parts of the body in a 52-year-old groom is described from the University Skin Clinic, Tübingen, Germany. The fungus proved resistant to fissan-tar oil, which failed to relieve the condition. The fungus is believed to have acted as a parasite in this case, although inoculation experiments on mice and intracutaneous tests on the patient failed to provide confirmatory evidence.

1482. Schwarz (J.) & Furcolow (M. L.). **Some epidemiologic factors and diagnostic tests in blastomycosis, coccidioidomycosis and histoplasmosis.**—*Amer. J. clin. Path.*, 25, 3, pp. 261–265, 3 figs., 1955.

In this study from the Laboratory of Mycology, Cincinnati General Hospital,

Cincinnati, Ohio, the authors point out that blastomycosis [*Blastomyces dermatitidis*], coccidioidomycosis [*Coccidioides immitis*], and histoplasmosis [*Histoplasma capsulatum*] are caused by the inhalation of airborne spores, and are not transmitted from man to man. Each has its geographical distribution: blastomycosis in the north and east of the United States, coccidioidomycosis in the south-west, and histoplasmosis in the central states. Skin sensitivity is long lasting in coccidioidomycosis and histoplasmosis, so the skin test is a valuable diagnostic test. This is not true of blastomycosis owing to cross reactions, all three tests should therefore be carried out together. The change from negative to positive skin reactions occurs four to six weeks after infection. Serological examinations are valuable for diagnosis and prognosis in all three infections.

1483. Smith (J. G.), Harris (J. S.), Conant (N. F.), & Smith (D. T.). **An epidemic of North American blastomycosis.**—*J. Amer. med. Ass.*, 158, 8, pp. 641–646, 2 figs., 1955.

Ten patients from Grifton, Pitt County, North Carolina, were admitted to Duke Hospital, Durham, North Carolina, during February and March, 1954. *Blastomyces dermatitidis* was isolated from every case, the organism being recovered from the sputum in eight cases, a lung abscess at post mortem in the one case that died, and from gastric washings in two cases. The disease most frequently attacked the lungs, and the fungus probably gained access by the respiratory tract. The other interesting observation on the outbreak is that seven of the cases were children.

1484. Downing (J. G.) & Folan (D. W.). **An unusual case of cutaneous blastomycosis.**—*New Engl. J. Med.*, 252, 3, pp. 103–104, 2 figs., 1955.

A 34-year-old animal attendant at Boston City Hospital, Massachusetts, developed a 'boil' on the thigh, a smear from which contained the budding cells of *Blastomyces dermatitidis*. The lesion healed completely after eight weeks' internal and local treatment with iodides. The patient had been affected 22 years earlier by blastomycotic lesions of the scalp, neck, and left upper arm as a sequel to a blow from a piece of old timber. Treatment either by excision or with carbon dioxide snow and electro-desiccation was completely successful. It is presumed that the lesion on the thigh was caused by reinfection in the course of employment rather than a 'flare-up' of the original focus.

1485. Dyson (J. E.) & Evans (E. E.). **Delayed hypersensitivity in experimental fungus infections. The skin reactivity of antigens from the yeast phase of Blastomyces dermatitidis.**—*J. invest. Derm.*, 24, 4, pp. 447–454, 1955.

Experiments carried out at the University of Michigan Medical School, Ann Arbor, have shown that antigenic fractions obtained from yeast-phase cultures of *Blastomyces dermatitidis* by precipitation with 67 per cent. ethanol are superior to blastomycin (obtained from the mycelial phase of the fungus) in the production of skin reactions in inoculated rabbits. The reaction is delayed but specific and occurs with amounts as small as 0·01 μgm. A procedure designed to remove proteins destroys the skin test reactivity of this antigen, suggesting that the active portion of the molecule may be a protein.

1486. Joulia (P.) & Le Coulant. **De quelques mycoses profondes et graves, certaines à type de blastomycose observées à Bordeaux au cours de ces dernières années.** [Of some deep-seated and serious mycoses, certain of them of the blastomycotic type, observed at Bordeaux in the course of the last few years.] —*Maroc méd.*, 34, 360, pp. 572–574, 1955.

Since their previous report on three cases of blastomycosis (~~*Blastomyces*~~ *Candida*

africanus
~~dermatitidis~~) at Bordeaux, France [2, No. 557], the authors have observed two more. In a woman in the fifties the ulcero-vegetative lesions in the deltoid region were eliminated by repeated curettages. A 57-year-old farmer was clinically cured by the administration of 25 gm. distilbene daily for 25 days but succumbed shortly afterwards to severe anaemia.

In the third patient, a 24-year-old female, infection originated in the left armpit and subsequently became generalized, terminating fatally two months later. Bacterial contamination precluded the identification of the fungus, which formed creamy colonies on Sabouraud's medium and produced numerous ovoid mycelial segments, flattened at either end, occurring singly or in chains of three to four, or sometimes in an encapsulated mass of seven or eight.

Mention is also made of a male patient in the fifties who contracted histoplasmosis (*Histoplasma capsulatum*) in Gabon [French Equatorial Africa] and died in a few months of septicaemia.

1487. Martínez Báez (M.), Reyes Mota (A.), & González Ochoa (A.). **Blastomicosis norteamericana en México.** [North American blastomycosis in Mexico.]—*Rev. Inst. Salubr. Enferm. trop., Méx.*, 14, 4, pp. 225–232, 3 pl., 1954. [English summary. Received 1955.]

The discovery of North American blastomycosis (*Blastomyces dermatitidis*) in a 34-year-old male patient at the Institute for Health and Tropical Diseases, Federal District of Mexico, constitutes the first record of the disease for the country [cf. 2, Nos. 258, 709]. The results of the autopsy findings and mycological studies are presented.

1488. Matsumoto (K. K.), Amatuzio (D. S.), Lomasney (T. L.), Ayres (W. W.), & Cuttle (T. D.). **North American blastomycosis treated with pulmonary resection and stilbamidine.**—*Amer. J. med. Sci.*, 229, 2, pp. 172–179, 5 figs., 1955.

From the United States Naval Hospital, Yokosuka, Japan, a case of pulmonary North American blastomycosis (*Blastomyces dermatitidis*) is reported in a 23-year-old American marine. The disease was presumably contracted in the United States from seven to 21 months previously. Treatment by resection of the affected parts of the lung was followed by stilbamidine therapy, which resulted in renal tubular damage, but three months after the first course of the drug had been completed there was no evidence of trigeminal neuropathy.

1489. McMillen (Shirley), Kushner (D. S.), & Snapper (I.). **The in vitro sensitivity of Blastomyces dermatitidis to six diamidine derivatives.**—*J. invest. Derm.*, 24, 4, pp. 455–461, 1 fig., 1955.

A method for testing, under comparable conditions, the sensitivity *in vitro* of the yeast and mycelial forms of *Blastomyces dermatitidis* to diamidine derivatives has been evolved at the Cook County Hospital, Chicago. The organism is grown on Sabouraud's agar slants in which the fungicide is incorporated in the desired quantities, the mycelium tubes being incubated at 30° C. and the yeast phase at 37°. All tubes are inoculated from a standardized suspension of the yeast phase of the fungus in normal saline. Results are recorded up to ten days from the preparation of the medium, after which point the drugs lose their activity, and are classified as positive or negative. Using this method, it was found that of six diamidine derivatives tested against 12 strains of *B. dermatitidis*, aminostilbamidine showed the maximum inhibitory activity, stilbamidine, 2-hydroxystilbamidine, and propamidine showed equal but less activity, and dibromopropamidine and pentamidine

were inactive. The fungistatic action of all the drugs tested was more marked against the yeast than against the mycelial form of the fungus.

1490. Montemayor (L.). **Blastomyces dermatitidis—Gilchrist & Stokes 1898 en Venezuela. Nota previa.** [*Blastomyces dermatitidis* Gilchrist & Stokes 1898 in Venezuela. Preliminary note.]—*Gac. méd. Caracas*, 62, 11–12, pp. 675–689, 13 figs., 1954. [Received November, 1955.]

The results are presented of a cultural and histopathological study at the National Institute of Hygiene of material infected with *Blastomyces dermatitidis* taken from the tongue of a 56-year-old male patient at the Valencia Central Hospital, Carabobo. This is believed to be the first record of the disease in Venezuela [cf 1, No. 1641]. The fungus was cultured on Sabouraud's 2 per cent. potato–carrot dextrose agar and maize meal agar at room temperature and 37° C. Under the former conditions the mycelial phase of the fungus developed, while the latter gave rise to the yeast stage.

1491. Polo (F. J.), Brass (K.), & De Montemayor (L.). **Enfermedad de Gilchrist en Venezuela. Primer caso. Estudio clínico. Comprobación histológica. Aislamiento y determinación de la primera cepa suramericana de Blastomyces dermatitidis.** [Gilchrist's disease in Venezuela. First case. Clinical study. Histological confirmation. Isolation and determination of the first South American strain of *Blastomyces dermatitidis*.]—*Rev. Sanid., Caracas*, 19, 3–4, pp. 217–235, 28 figs., 1954.

The information given in this paper on the occurrence of *Blastomyces dermatitidis* in South America is noted in the preceding abstract.

1492. Newberne (J. W.), Neal (J. E.), & Heath (M. K.). **Some clinical and microbiological observations on four cases of canine blastomycosis.**—*J. Amer. vet. med. Ass.*, 127, 942, pp. 220–228, 4 figs., 1955.

Four additional cases of canine blastomycosis (*Blastomyces dermatitidis*) are reported, two from Alabama and one each from Mississippi and Louisiana [cf. 2, No. 969 and next entry]. Two of the dogs were beagles (one male and one female), one a foxhound, and one a pointer (both males). Two cases were of the systemic type with extensive pulmonary involvement, one of localized, benign infection of the lungs, and one cutaneous with generalized lymphadenopathy.

1493. Scott (M. J.). **Cutaneous blastomycosis. Report of case following dog bite.**—*Northw. Med., Seattle*, 54, 3, pp. 255–257, 3 figs., 1955.

A case of cutaneous blastomycosis (*Blastomyces dermatitidis*) in a 44-year-old woman whose right index finger was bitten by a dog is reported from Seattle, Washington, infection having probably occurred simultaneously with the injury [cf. preceding entry]. A cure was effected by a prolonged course of therapy with sodium iodide, administered intravenously, and potassium iodide taken orally, supplemented by superficial X-ray irradiation at weekly intervals. Information is presented on the types, mycology, pathology, prognosis, and treatment of the disease.

1494. Müller (E.), & Hilscher (W. M.). **Zur Frage der generalisierten Blastomykose und ihrer Beziehungen zur Lymphogranulomatose.** [On the question of generalized blastomycosis and its relations with lymphogranulomatosis.]—*Zbl. allg. Path. path. Anat.*, 92, 9, pp. 331–338, 4 figs., 1954.

A detailed account is given of the autopsy at the Pathological Institute of Erlangen University, Germany, on a 32-year-old male who succumbed to

generalized blastomycosis [*Blastomyces dermatitidis*]. An unusual feature of the case was the exceptionally long duration of the illness (probably 14 years from the onset). The histological findings pointed to a lymphosarcomatous initial stage, followed by the development of typical tuberculoid yeast granulomata and lymphogranulomatous reaction forms and terminating with reactionless fungal inundation. Contrary to opinions expressed in the relevant literature, the authors do not interpret their case as a secondary manifestation of lymphogranulomatosis but as a pure fungal infection, partially simulating a pseudo-lymphogranulomatosis.

1495. Poirier (P.). **Blastomycose nord-américaine (maladie de Gilchrist).** [North American blastomycosis (Gilchrist's disease).]—*Un. méd. Can.*, 84, 3, p. 287, 1 fig., 1955.

A rapid cure was effected by potassium iodide in a case of North American blastomycosis (*Blastomyces dermatitidis*) involving exclusively the right side of the face, neck, and upper third of the thorax in a 46-year-old male patient at the Hôtel-Dieu, Montreal, Canada [2, Nos. 1204, 1205, 1206].

1496. Sutliff (W. D.), Kyle (J. W.), & Hobson (J. L.). **North American blastomycosis: clinical forms of the disease and treatment with stilbamidine and 2-hydroxystilbamidine.**—*Ann. intern. med.*, 41, 1, pp. 89–107, 10 figs., 1954.

Descriptions of 25 cases of North American blastomycosis (*Blastomyces dermatitidis*) are recorded from the Department of Medicine, University of Tennessee. Of 11 cases treated before aromatic diamidines became available, the disease was arrested in five, four were unimproved, and two died of the active disease. Of seven patients treated with stilbamidine the disease was arrested (though with neurotoxic complications) in six, with one relapse, and unimproved in one. A third group of 12 patients was treated with 2-hydroxystilbamidine, and of these the disease was arrested in seven cases and unimproved in three. The authors conclude that a further study of the toxity and dosage rates, and observation over longer periods are needed to obtain the optimal results from diamidine therapy.

1497. Barron (C. N.). **Cryptococcosis in animals.**—*J. Amer. vet. med. Ass.*, 127, 941, pp. 125–132, 8 figs., 1955.

This is a review of 35 contributions to the literature on cryptococcosis (*Cryptococcus neoformans*), with special reference to its occurrence in animals [1, Nos. 703, 1815], which is being demonstrated with increasing frequency in the United States [2, No. 1229].

1498. Campos (J. de O.). **Congenital meningo-encephalitis due to Torulopsis neoformans (cryptococcosis).**—*Rev. clin. Inst. matern., Lisb.*, 6, 18, pp. 87–92, 1954.

The autopsy on a new-born female infant who lived for only 20 minutes at the Maternity Institute, Lisbon, revealed infection (apparently contracted *in utero*) by *Torulopsis* [*Cryptococcus*] *neoformans*, here recorded for the first time in Portugal [cf. 2, No. 270].

1499. Monnet (P.), Coudert (J.), Bethenod (M.), & Blanc (P. E.). **Méningo-encéphalite à Torula chez un Nourrisson.** [Meningo-encephalitis caused by *Torula* in an Infant.]—*Lyon méd.*, 87, 16, pp. 377–378, 10 figs., 1955.

The clinical symptoms and autopsy in a case of meningo-encephalitis caused by *Cryptococcus neoformans* in a year-old female infant are fully reported from the Hôpital Saint-Chamoud, Lyons, France.

1500. Fingerland (A.), Vortel (V.), Dvořák (J.), & Zdráhal (L.). **Generalisovaná kryptokokkosa (torulosa).** [Generalized cryptococcosis (torulosis).]—*Čas. Lék. čes.*, 93, 30, pp. 809–816, 2 figs., 1954. [Russian and English summaries.]

A fatal case of cryptococcosis is reported in a 28-year-old male patient in Czechoslovakia. *Torula histolytica* [*Cryptococcus neoformans*] was isolated from the cerebro-spinal fluid, lungs, kidneys, heart muscle, liver, and spleen. The fungus was highly resistant to drying and could be cultured from the cerebro-spinal fluid even after nine weeks' drying on slides. Infection was reproduced in guinea-pigs by means of intracerebral, intratracheal, intracardial, and intraperitoneal inoculation. The use of mucicarmine for staining greatly facilitated the differentiation of *C. neoformans* infection of the central nervous system from tuberculous meningitis.

1501. Giordani (Giulia). **Alcune osservazioni su lieviti rinvenuti nell' apparato digerente di Api ammalate.** [Some observations on yeasts found in the digestive apparatus of diseased Bees.]—*Ann. Sper. agr.*, 7, 2, pp. 633–646, 1953. [English summary.]

In studies conducted at the National Institute of Apiculture, Bologna, Italy, several yeast strains were isolated from the digestive tract of bees from all parts of Italy affected by a disease of undetermined nature. They presented the usual symptoms seen in adult bees suffering from a disease, such as inability to fly, swollen abdomen, and convulsive movements of the body. The only constant feature was the presence of an abundant yeast flora in the digestive tract.

When healthy bees were fed with the isolated yeast strains, suspended in sugar syrup, No. 93, belonging to the genus *Torulopsis*, was the only one which developed profusely in the digestive tract under favourable conditions, including low temperatures. It caused a heavier mortality than any other strain tested and in one instance destroyed an entire colony. Infection was not accompanied by dysentery.

1502. Jacobsen (J.). **Zur Kenntnis der Torulopsis neoformans-Infektion.** [A contribution to the knowledge of *Torulopsis neoformans* infection.]—*Frankf. Z. Path., Münch.*, 66, 2, pp. 135–141, 5 figs., 1955.

This is a report from the Pathological Institute of the University, Hamburg-Eppendorf, Germany, of the autopsy on a 34-year-old agricultural worker who succumbed to meningo-encephalitis caused by *Cryptococcus neoformans*. Death occurred four months after the inception of cerebral symptoms, which were accompanied by lymph node changes, also attributed to the fungus.

1503. Nichols (D. R.) & Martin (W. J.). **Cryptococcosis : clinical features and differential diagnosis.**—*Ann. intern. Med.*, 43, 4, pp. 767–780, 5 figs., 1955.

Six cases of cryptococcosis (*Cryptococcus neoformans*) are described from the Mayo Clinic and Foundation, Rochester, Minnesota, and three others are mentioned. Five of the six were disseminated and terminated fatally; the sixth showed a discrete pulmonary lesion, the excision of which resulted in an apparent cure. Bones and lymph nodes were common sites of infection and death was usually due to encephalo-meningitis. Symptoms referable to lesions elsewhere in the body often preceded those caused by lesions of the central nervous system. The cryptococcal infection was associated with Hodgkin's disease in one, and possibly in two of the patients.

1504. Farrell (Anne) & Helfer (L. M.). **Cryptococcus neoformans meningo-encephalitis. Report of case treated with actidione and forced drainage.**—*Texas St. J. Med.*, 51, 8, pp. 516–518, 1955.

Following a review of 12 contributions to the relevant literature, the authors report from the Baptist Memorial Hospital, San Antonio, Texas, the clinical course and autopsy findings in a case of meningo-encephalitis (*Cryptococcus neoformans*) in a 29-year-old male. A new method of treatment with actidione in conjunction with forced drainage of the cerebro-spinal fluid is described. Within three weeks of its institution, no growth of the fungus developed in cultures from the fluid and at the post-mortem they were still negative.

1505. Norris (J. C.) & Armstrong (W. B.). **Membranous cryptococcic naso-pharyngitis (Cryptococcus neoformans).**—*Arch. Otolaryng., Chicago*, 60, 6, pp. 720–722, 1954.

A case of cryptococcic nasopharyngitis in a middle-aged woman is described from Atlanta, Georgia. A gelatinous membrane containing cells of *Cryptococcus neoformans* was removed from the upper uvula and nasopharynx and the fungus was isolated in culture. The disease appeared to be localized and no contacts could be traced. The condition was successfully treated by means of a 2 per cent. gentian violet paint containing bismuth and hexylresorcinol, combined with intramuscular injections of bismuth salicylate in oil with chlorobutanol.

1506. Fischer (J. B.) & Labzoffsky (N. A.). **Preparation of complement fixing antigen from Cryptococcus neoformans.**—*Canad. J. Microbiol.*, 1, 6, pp. 451–454, 1 pl., 1955.

A complement-fixing antigen from *Cryptococcus neoformans* was prepared by treating a centrifuged culture with pyridine for two hours at room temperature, washing three times with buffered 0·85 per cent. sodium chloride, resuspending, and exposing to ultrasonic vibrations for ten minutes. The preparation was specific, sensitive, and not anti-complementary.

1507. Simon (J.). **In vitro inhibition of mixed strains of Cryptococcus neoformans isolated from Cattle.**—*Amer. J. vet. Res.*, 16, 60, pp. 394–396, 1955.

At the Department of Veterinary Science, University of Wisconsin, the growth of several bovine strains of *Cryptococcus neoformans* [2, No. 44] on Sabouraud's dextrose agar was inhibited by ethyl vanillate at a minimum concentration of 0·75 mg. per ml., metaben (methyl-*para*-hydroxybenzoate) at 1·25, paraben (n-propyl-para-hydroxybenzoate) [2, No. 1341] at 0·0156, and polymyxin B and neomycin at 25 units per ml.

Besides these antimycotics, the following common laboratory disinfectants exerted a comparable effect after 15 minutes' contact with mixed suspensions of the fungus: modified commercial roccal (10 per cent.), 30 per cent. hydrogen peroxide, 70 and 95 per cent. ethyl alcohol, and normal sodium hydroxide.

1508. McGrath (J. T.). **Cryptococcosis of the central nervous system in domestic animals.**—*Amer. J. Path.*, 30, p. 651, 1954.

In this abstract of a paper read at the University of Pennsylvania Veterinary School, ten cases of cryptococcosis [? *Cryptococcus neoformans*] occurring in animals are discussed. In six cases (three cats, two dogs, and one horse) the animals showed clinical signs of neurological disturbance. At autopsy three cases showed typical, milky, thickened leptomeninges, with small, cyst-like cavities throughout the brain. In two cases gross lesions of meningitis were noted and the organisms were grown in culture.

1509. Farris (G.). **Contributo personale alla conoscenza della paracoccidioido micosi (cosiddetta blastomicosi brasiliana).** [A personal contribution to the knowledge of paracoccidioidomycosis (so-called Brazilian blastomycosis).]—*G. ital. Derm. Sif.*, 96, 4, pp. 321–358, 10 figs., 1955. [French, English, and German summaries.]

This is an important, fully documented study on South American blastomycosis (*Paracoccidioides brasiliensis*) in connexion with a case involving the forehead and left latero-cervical region in a 66-year-old male patient at the Dermatological Clinic of the University of Genoa. The first symptoms of a recurrence after more than 20 years' quiescence since the onset of infection were lichenoid foci of mycotic appearance, followed two years later by small, cutaneous-mucous localizations of granulomatous structure in which the fungus was detected. Features of interest in the case include the extreme rarity of the disease in Italy, where this is only the third record, the two others dating from 1914 and 1934; the mycotic lichenoid lesions; the abundant eosinophilic participation in the specific granuloma; and the very poor response to antimycotic therapy.

1510. Floch (H.) & Saccharin (H.). **Sur un cas de maladie de Lutz.** [On a case of Lutz's disease.]—*Bull. Soc. Path. exot.*, 48, 5, pp. 686–691, 1955.

From the Hôpital Jean-Martial, Cayenne, French Guiana, the authors report a case of South American blastomycosis (*Paracoccidioides brasiliensis*) involving the nasal fossae of a 45-year-old Creole. The infection may have originated in an injury to the left shoulder while working in the woods seven years earlier. A cure was effected by a course of treatment with diaminodiphenylsulphone.

1511. Bonetti Dupont (C. A.), Muzzio (J. C.), Querol (H. E.), & Zapater (R. C.). **Blastomicosis sudamericana cutaneo-laringopulmonar.** [Cutaneo-laryngo-pulmonary South American blastomycosis.]—*Prensa méd. argent.*, 41, 14, pp. 933–940, 13 figs., 1954.

A case of South American blastomycosis (*Paracoccidioides brasiliensis*), causing diffuse infiltrative ulceration of the larynx in a 42-year-old patient at a military hospital in Buenos Aires, Argentina, is fully reported and discussed in relation to 42 contributions to the relevant literature. A complete cure was effected by means of an additive course of sulpha therapy, using sulphadiazine, sulphamericana, sulphamethazine, and triosulun Squibb.

1512. David de Sanson (R.). **Traitement de la blastomycose (mycose de Lutz) localisée sur les cordes vocales.** [Treatment of blastomycosis (Lutz's mycosis), localized on the vocal chords.]—*Bull. Acad. nat. Méd.*, 139, 3–4, pp. 56–62, 1955.

A detailed account is given of a case of South American blastomycosis (*Paracoccidioides* [*brasiliensis*]) affecting the vocal chords of a 50-year-old lawyer, who was under the author's care in Rio de Janeiro, Brazil, from 1929 to 1934. A complete cure was effected by means of electro-coagulation. In conclusion, the value of sulpha drugs in the therapy of the disease is discussed.

1513. Potenza (L.), Campos (C. L.), & Feo (M.). **Infantile paracoccidioidosis with special reference to the aspect of the parasite in polarized light.**—*Docum. Med. geogr. trop.*, 7, 1, pp. 16–21, 5 figs., 1955. [Spanish summary.]

The information here presented on South American blastomycosis (*Paracoccidioides brasiliensis*) in Venezuela has already been noticed from another source [2, No. 717].

1514. Malfatti (M. G.) & Zapater (R. C.). **Consideraciones sobre la evolución y morfología del Paracoccidioides brasiliensis que resultan de la observación electrónica.** [Considerations on the evolution and morphology of *Paracoccidioides brasiliensis* resulting from electronic observation.]—*Prensa méd. argent.*, 41, 8, pp. 534–540, 16 figs., 1954. [English summary.]

The results of an electron-microscopic study of three strains of *Paracoccidioides brasiliensis*, cultured at room temperature and 37° C., are reported from the Naval and Military Hospitals, Buenos Aires, Argentina [2, No. 985]. The hyphae were of two kinds, one thick and hypertrophied and the other slender. The latter certain cytoplasmic inclusions which tend to assume a more or less oval shape; when very large they leave the rest of the hypha empty. In this way the inclusions become practically free and at 37° they appear to develop into mature cells, giving rise by a budding process to the gemmules characteristic of the species.

1515. Segretain (G.) & Drouhet (E.). **Blastomycoses expérimentales du Hamster Doré.** [Experimental blastomycoses of the Golden Hamster.]—*Ann. Inst. Pasteur*, 89, 5, pp. 593–596, 1 pl., 1955.

The golden hamster [*Mesocricetus auratus*] proved particularly useful in the writers' intraperitoneal inoculation experiments with *Blastomyces dermatitidis* and *Paracoccidioides brasiliensis* [2, No. 55], being the only animal in which generalized infection by the latter species, with development of the typical club-shaped elements, is readily obtained.

1516. Azulay (R. D.). **Zur Histopathologie der Chromoblastomykose.** [On the histopathology of chromoblastomycosis.]—*Hautarzt*, 6, 5, pp. 205–208, 7 figs., 1955.

The histological changes induced by chromoblastomycosis in human tissues and those of experimental animals are described from the University Skin Clinic, Rio de Janeiro, Brazil, and discussed in relation to some contributions to the meagre literature on the subject. The alterations are considered to be without specific significance, which attaches only to the presence of the circular, brown spores of *Phialophora verrucosa* or *Fonsecaea* [*P.*] *pedrosoi* [1, No. 1880; 2, No. 987].

1517. Ales Reinlein (J. M.) & Ortiz Masllorens (F.). **Coccidioidomicosis.** [Coccidioidomycosis.]—*Rev. clín. esp.*, 57, 1, pp. 1–10, 3 figs., 1955.

From a study of 65 contributions to the literature on coccidioidomycosis (*Coccidioides immitis*) the authors have prepared a useful survey of up-to-date information on the disease, which is presented under the main headings of etiology, epidemiology, clinical aspects, diagnosis, immunological methods, and therapy.

1518. Baum (G. L.) & Schwarz (J.). **Coccidioidomycosis : a review.**—*Amer. J. med. Sci.* 230, 1, pp. 82–97, 1955.

This survey of essential information on the epidemiology, mycology, and pathology of coccidioidomycosis (*Coccidioides immitis*), its occurrence in animals, and its clinical manifestations, is based on 139 contributions to the relevant literature.

1519. Cogswell (H. D.), Czerny (E. W.), & Fritz (J. M.). **Surgical lesions of coccidioidomycosis.**—*Arch. Surg., Chicago*, 70, 5, pp. 633–642, 8 figs., 1 diag., 1955.

Nine cases of coccidioidomycosis (*Coccidioides immitis*) are fully described

from Tucson, Arizona, to illustrate the possibilities of surgical intervention in the disease.

1520. Cotton (B. H.), Paulsen (G. A.), & Birsner (J. W.). **Surgical considerations in pulmonary coccidioidomycosis. Report of 100 cases.**—*Amer. J. Surg.*, 90, 1, pp. 101–106, 6 figs., 1955.

From Los Angeles and Bakersfield, California, the authors present the findings in a series of 100 cases of pulmonary coccidioidomycosis (*Coccidioides immitis*) treated by surgical intervention. In this group there was only one post-operative death and two cases of complications which were removed by secondary operations. The indications for surgery are reviewed. It is considered that the risk of dissemination of the pathogen through operation is negligible, and that the determination to use this method should be based purely on mechanical considerations, with complete disregard of *C. immitis* or other co-existing fungi or tuberculosis.

1521. Fiese (M. J.). **Recent experiences in the treatment of disseminated coccidioidomycosis.**—*Stanf. med. Bull.*, 13, 2, pp. 91–97, 3 graphs, 1955.

On the basis of personal experience at the Veterans Administration Hospital, Fresno, California, and a study of 27 contributions to the relevant literature, the writer expresses the following opinion of ethyl vanillate as a remedy for coccidioidomycosis (*Coccidioides immitis*) [2, No. 1238]. The drug is not the final answer to the problem of therapy. It is difficult to administer and its effectiveness is variable and in any case only moderate. It is, however, the best line of treatment generally available at present.

1522. Fiese (M. J.), Cheu (S.), & Sorensen (R. H.). **Mycelial forms of Coccidioides immitis in sputum and tissues of the human host.**—*Ann. intern. Med.*, 43, 2, pp. 255–270, 8 figs., 1955.

Out of 98 cases of coccidioidomycosis (*Coccidioides immitis*) seen at the Veterans Administration Hospital, Fresno, California, pulmonary resection was performed on eight for cavity formation and four for granuloma. Both mycelium and spherules were found in the pathological specimens from three of each of these types of lesion. In addition, mycelial forms were demonstrated in the sputum of four of the patients with lung cavities. The Hotchkiss–McManus stain was found very satisfactory for the demonstration of mycelium, as also was Cohen's fountain pen ink method [2, Nos. 847, 1150]. It is emphasized that mycelial forms will only be found when conditions in the body approximate to those of the external environment where the fungus grows saprophytically, i.e., on the surface walls of lung cavities or within the necrotic debris of a granuloma. Despite these findings it is still considered that there is little danger of contagion in coccidioidomycosis.

1523. Gordon (L. E.), Smith (C. E.), & Wedin (D. S.). **Nystatin (mycostatin) therapy in experimental coccidioidomycosis.**—*Amer. Rev. Tuberc.*, 72, 1, pp. 46–70, 3 graphs, 1955. [Spanish and French summaries.]

At the School of Public Health and Naval Biological Laboratory, University of California, Berkeley, nystatin (mycostatin) [2, Nos. 1428, 1441, 1594, 1615] inhibited the growth of *Coccidioides immitis* on asparagine medium at a concentration of 100 γ per ml. There was a marked reduction in mortality among male white mice inoculated intraperitoneally with a saline spore suspension of the fungus and treated shortly afterwards with repeated dosages of 1 mg. nystatin; when the administration of the drug was delayed beyond eight days it was less effective. Extensive pulmonary and visceral lesions were found in all the animals that died, treated and untreated.

1524. Hampson (C. R.). **Sporulation capacity of Coccidioides immitis affected by cultural conditions.**—*J. Bact.*, 67, 6, pp. 739–740, 1954.

Twenty strains of *Coccidioides immitis* were studied in culture on Sabouraud's glucose agar at the Kern General Hospital, Bakersfield, California. The absence of typical spores was noticed in two of the strains cultured in tubes plugged with cotton and incubated at room temperature, and in seven cultured in screw-capped tubes. No spores were observed in seven of the strains cultured in cotton-plugged tubes and incubated at 37° C. or in 12 strains grown in screw-capped bottles. Identification of non-sporing strains can only be made by animal inoculation.

1525. Lubarsky (R.) & Plunkett (O. A.). **In vitro production of the spherule phase of Coccidioides immitis.**—*J. Bact.*, 70, 2, pp. 182–186, 7 figs., 1955.

A new and satisfactory method, developed at the Department of Botany, University of California, Los Angeles, for the production of *Coccidioides immitis* spherules in culture is described. The tissue culture medium used was composed of sterile Tyrode's solution, 4 parts; sterile water serum, 2 parts; chick embryo extract, 2 parts (made from embryos pulverized in a Waring blendor, 0·2 ml. Tyrode's solution added per embryo, and the extract filtered through a Seitz filter). Special culture tubes, termed spherule tubes, with a short U-shaped extension at the base to permit the extraction of liquids, were fitted with tubes to allow oxygen and carbon dioxide to bubble through the medium. A series of six spherule tubes were used at one time and the whole series was incubated at 37° C. Abundant spherule production was achieved. The experiments showed that in order to prevent reversion to the vegetative phase of the life-cycle, the medium had to be replenished after 48 hours.

1526. Short (G. E.), Schleicher (E. M.), & Rice (W. M.). **Coccidioidomycosis in a Kansas Dog.**—*J. Amer. vet. med. Ass.*, 127, 943, pp. 352–353, 4 figs., 1955.

A case of pulmonary coccidioidomycosis (*Coccidioides immitis*) in an 18-month-old Brittany spaniel from Kansas is reported from the School of Veterinary Medicine, Oklahoma A. & M. College, Stillwater. This is believed to be the first record of the disease from this area of the United States [cf. 2, No. 1249].

1527. Snapper (I.), Baker (L. A.), Edidin (B. D.), & Kushner (D. S.). **The results of 2-hydroxystilbamidine therapy in disseminated coccidioidomycosis.**—*Ann. intern. Med.*, 43, 2, pp. 271–286, 2 figs., 1955.

Case-histories are given of seven patients treated for disseminated coccidioidomycosis (*Coccidioides immitis*) with 2-hydroxystilbamidine at the Veterans Administration Hospital, Hines, and the Cook County Hospital, Chicago, Illinois. In five of these there was evidence of a suppressive effect on the progression of the disease, but low-grade infection persisted. The other two patients died. Despite the high dosage used no instance of toxicity occurred, though gastro-intestinal side effects were troublesome.

1528. Sotelo-Ortiz (F.). **Chronic coccidioidal synovitis of the knee joint.**—*J. Bone Jt. Surg.*, 37, 1, pp. 49–56, 2 figs., 1955.

Following a review of the various forms of coccidioidomycosis (*Coccidioides immitis*), two cases of chronic synovitis of the knee joint are described from Sonora, Mexico. The lesions, easily confused with those of tuberculosis, occurred in a 32-year-old woman and a 19-year-old male, and in both cases synovectomy resulted in some improvement. Cultures were not obtained, but spherules of *C. immitis* were found in the specimens taken at operation.

1529. Sternberg (T. H.), Newcomer (V. D.), Steffen (C. G.), Fields (M.), & Libby (R. L.). **The distribution of radioactive iodine (I-131) in experimental coccidioidomycosis and sporotrichosis.**—*J. invest. Derm.*, 24, 4, pp. 397–415, 1955.

Experiments designed to discover the fate of iodine administered for the therapy of coccidioidomycosis (*Coccidioides immitis*) and sporotrichosis (*Sporotrichum schencki*) were carried out at the Wadsworth General Hospital and the University of California Medical Center, Los Angeles. Mice inoculated with the two fungi were treated with radio-active iodine, I–131, and the radio-activity in various organs computed at death. The uptake by the thyroid gland of the inoculated animals after 24 and 48 hours was found to be considerably less than in the controls. In the case of *C. immitis* the uptake by the granulomatous tissues in up to 48 hours was significantly greater than in the controls, while after this period the same trend was apparent in *S. schencki*. There was marked alteration in the deposition of I–131 in the livers of animals with both diseases. Iodine was distributed evenly to the omenta, granulomatous tissues, and livers of mice infected with both coccidioidomycosis and sporotrichosis, as well as in those of the controls, when I–131 was administered daily for four days concurrently with I–127.

1530. Turn (Jenny) & Eveleth (D. F.). **Coccidioidomycosis in a North Dakota Cottontail Rabbit (Sylvitagus floridaurus).**—*Proc. N. Dak. Acad. Sci.*, 8, pp. 42–43, 1954.

A wild cottontail rabbit (*Sylvitagus floridaurus*) killed near Fargo, North Dakota, had a large cyst in the suprascapular fossa which further investigation at the State Agricultural College showed to be due to coccidioidomycosis [*Coccidioides immitis*]. This is the first record of the disease in North Dakota and apparently the only record of it up to the present on this host. Minor lesions, from which the organisms were also isolated, developed in the leg muscle of an inoculated guinea-pig and in the lung of a rat.

1531. Mazet (R.). **Skeletal lesions in coccidioidomycosis.**—*Arch. Surg., Chicago*, 70, 4, pp. 497–507, 5 figs., 1 graph, 1955.

Twenty-two cases, eleven of which were fatal, of coccidioidomycosis (*Coccidioides immitis*) involving the skeletal system are reported from the Wadsworths General Hospital, Veterans Administration Center, and the University of California School of Medicine, Los Angeles. The patients, including negroes, a Philippino, and Caucasians, ranged from 21 to 55 years of age. The average duration of the disease was 8·3 months. No bone or joint is immune from invasion and there is no specific therapy. The diagnosis of the disease is made by identification of the organism.

1532. Norman (D. D.) & Miller (Z. R.). **Coccidioidomycosis of the central nervous system ; a case of ten years' duration.**—*Neurology*, 4, 9, pp. 713–717, 1954.

The longest known survival (ten years) of a proved case of disseminated coccidioidomycosis of the central nervous system is reported from the Veterans Administration Hospital, and University of Minnesota Hospital, Minneapolis. Repeated palliative surgery and rehabilitation measures effected a cure.

1533. Smith (C. E.). **Coccidioidomycosis.**—W. B. Saunders Company, The pediatric clinics of North America, Vol. 2, pp. 109–125, 2 graphs, 1 map, 1955.

In this contribution from the School of Public Health, University of California, Berkeley, the author gives an account of the history, etiology, geographical distribution, symptoms, pathology, laboratory diagnosis, and clinical

course and management of coccidioidomycosis (*Coccidioides immitis*). A bibliography of 43 titles is appended.

1534. Emmons (C. W.). **Histoplasmosis.**—*Bull. N.Y. Acad. Med.*, 31, 9, pp. 627–638, 1955.

The history, world distribution, and spread of histoplasmosis (*Histoplasma capsulatum*) are briefly reviewed with frequent references to the literature (57 titles).

1535. Loosli (C. G.). **Histoplasmosis. Some clinical, epidemiological, and laboratory aspects.**—*Med. clin. N. Amer.*, pp. 171–199, 22 figs., 2 graphs, 1 map, 1955.

A full account, based largely on the author's own experience and observations, is given of histoplasmosis (*Histoplasma capsulatum*) under the main headings: methods employed in diagnosis, prevalence of the disease, epidemiology and pathogenesis, signs and symptoms, and treatment. A list of 107 references is appended.

1536. Scherr (G. H.). **The laboratory diagnosis of mycotic infections. I. Histoplasmosis.**—*Neb. St. med. J.*, 39, 8, pp. 339–341, 1 fig., 1954.

The following laboratory methods are described from the Department of Microbiology, Creighton University School of Medicine, Omaha, Nebraska, for the diagnosis of histoplasmosis and the identification of *Histoplasma capsulatum* from suspected clinical material, namely the histoplasmin skin test, the direct smear and tissue section, the use of culture media, and experimental infection of laboratory animals.

1537. Fitzpatrick (M. J.) & Reuber (M. D.). **Addison's disease associated with disseminated histoplasmosis and pulmonary tuberculosis.**—*Amer. Rev. Tuberc.*, 72, 5, pp. 675–684, 9 figs., 1955. [Spanish and French summaries.]

A fatal case of co-existent Addison's disease, pulmonary tuberculosis, and disseminated histoplasmosis (*Histoplasma capsulatum*) in a 40-year-old male patient is fully reported from the University of Kansas Medical Center.

1538. Dickie (Helen A.) & Murphy (M. E.). **Laboratory infection with Histoplasma capsulatum.**—*Amer. Rev. Tuberc.*, 72, 5, pp. 690–692, 1955.

Evidence is presented from the Department of Preventive Medicine, University of Wisconsin, that laboratory exposure to *Histoplasma capsulatum* may result in a high incidence of infection without recognizable symptoms of illness or roentgenographic signs of pulmonary abnormality. Five out of 17 women students and one male reacted positively to histoplasmin skin, complement-fixation, and precipitin tests. Only one of the women and the man became clinically ill, but the handling of the fungus obviously entails considerable risk and requires the observance of due precautions.

1539. Frisk (A.) & Hedenius (P.). **The histoplasmin test as a diagnostic aid in obscure pulmonary affections. A preliminary report.**—*Proc. seventh int. bot. Congr., Stockholm, 1950*, pp. 421–422, 1953.

In a small-scale investigation carried out in Sweden on tuberculin-negative patients with obscure pulmonary affections with or without hilar lymphadenic calcification no patient was histoplasmin-positive. Other evidence from five members of the staff [Institute not mentioned] indicated the existence of a benign form of histoplasmosis (*Histoplasma capsulatum*).

1540. Dyson (J. E.). **A study of yeast phase antigens in the delayed skin reactions of experimental histoplasmosis and blastomycosis.**—*Diss. Abstr.*, 15, 4, pp. 487–488, 1955.

Although the supernatant fluids from mycelial cultures of *Blastomyces dermatitidis* and *Histoplasma capsulatum*, termed blastomycin and histoplasmin, respectively, have been used with some success as diagnostic aids in skin tests in suspected cases of these diseases, they have not been entirely satisfactory since they tend to react when tested in a subject infected with a homologous fungus. At the University of Michigan the cross-reactions of the antigenic fractions of each organism were studied to determine the possibility of securing a fraction specific to the homologous organism yet possessing sufficient sensitivity to produce a delayed skin reaction in all the infected animals tested. Since the yeast phase alone is found in infected animals, yeast-phase cultures [2, No. 769] were used in preference to histoplasmin and blastomycin from mycelial growth for the preparation of antigens by extraction and by fractionation of ground cell material. Fractions of the supernatant cultural fluids were dried by lyophilization and a weighed amount of antigen was inoculated intracutaneously into rabbits and guinea-pigs, both infected with *B. dermatitidis* and *H. capsulatum* and other fungi and left uninfected as controls. Several were studied by means of paper chromatography.

Extracts of yeast-phase cells with buffer solutions and formamide did not yield sensitive and specific antigens, but fractions prepared by the precipitation of material from the supernatant fluids of yeast-phase cultures with acetone or heavy metal ions were quite satisfactory. The most effective fractions were obtained by the addition of various amounts of absolute ethanol to the supernates. All the fractions had high specificity and sensitivity at the 10 μgm. level. The best antigens from *B. dermatitidis* supernates were precipitated with an ethanol concentration of 50 to 67 per cent. and those from *H. capsulatum* with 50 to 75 per cent. These did not react in animals inoculated with *Cryptococcus neoformans*, *Coccidioides immitis*, *Candida albicans*, or *Sporotrichum schencki*. Aliquots of *B. dermatitidis* and *H. capsulatum* fractions had no skin-test reactivity when deproteinized. When the same fractions were hydrolysed and placed on paper chromatograms both species appeared to contain glucose, galactose, and mannose.

1541. Labzoffsky (N. A.) & Fischer (J. B.). **A simple method of preparing an antigen from Histoplasma capsulatum for use in the complement fixation test.**—*Canad. J. Microbiol.*, 1, 7, pp. 520–524, 1955.

An antigen from *Histoplasma capsulatum* may be prepared by extracting the sedimented yeast phase growth with pyridine for two hours and subsequent washing of the extract three times with buffered saline solution. The resulting antigen is non-viable, potent, stable, and not anti-complementary. It may be of use in routine diagnostic tests.

1542. Salvin (S. B.) & Furcolow (M. L.). **Precipitins in human histoplasmosis.**—*J. Lab. clin. Med.*, 43, 2, pp. 259–274, 7 figs., 1954.

In an investigation carried out under the auspices of the United States Department of Health, Education, and welfare six acute cases of histoplasmosis, two proved by the isolation of *Histoplasma capsulatum* and four demonstrated by a change from negative to positive in the histoplasmin skin test, were investigated by complement-fixation and precipitation tests. Precipitins to a mycelial extract of *H. capsulatum* appeared about two weeks after the appearance of symptoms, rose sharply, and then fell, whilst complement-fixing

antibodies were either not detected or were found at so low a titre as to be of little diagnostic value.

Cross-reactions with antigens from *Blastomyces dermatitidis* and *Coccidioides immitis* were demonstrated by precipitation tests in all eight patients, but they gave lower titres than the homologous antigen. Of 524 sera from 'histoplasmin-negative' patients, 4 per cent. contained detectable precipitins. Full case-histories of the patients are given.

1543. Billings (F. T.) & Couch (O. A.). **Pericardial calcification and histoplasmin sensitivity.**—*Ann. intern. Med.*, 42, 3, pp. 654–658, 2 figs., 1955.

Two case-histories are given from the Vanderbilt University Medical School, Nashville, Tennessee, one of a 28-year-old man and the other of a 26-year-old woman, in both of whom calcification of the pericardium had been demonstrated by X-rays. Both patients were negative to tuberculin and positive to histoplasmin skin tests, and it is suggested that histoplasmosis [*Histoplasma capsulatum*] may be another cause of this condition.

1544. Binford (C. H.). **Histoplasmosis. Tissue reactions and morphologic variations of the fungus.**—*Amer. J. clin. Path.*, 25, 1, pp. 25–36, 5 pl., 1955.

In a study of material from 22 fatal cases of disseminated histoplasmosis (*Histoplasma capsulatum*) and many other cases of the non-disseminated form of the disease various types of pathologic reactions of the tissues were observed. The yeast form of the fungus grows prolifically in the cytoplasm of the cells of the reticulo-endothelial system and the affected organ becomes greatly enlarged. In ten cases the tissue reactions resembled tuberculosis or sometimes Boeck's sarcoid.

Special staining revealed *H. capsulatum* in non-caseous epithelioid granuloma lesions and in an increasing number of cases in the necrotic centres of pulmonary 'tuberculonids'. In almost all the cases of disseminated histoplasmosis the adrenal gland was affected, in some the renal medulla and the spleen.

Extracellular forms of *H. capsulatum* in necrotic tissue are not stained by haematoxylin and eosin and may be distorted and enlarged; occasionally hyphae may be seen. In two of the three cases of endocarditis studied mycelial growth and transitional phases from the yeast form to hyphae were observed in valvular thrombi probably due to the fungus developing under unusual environmental conditions.

1545. Middleton (J. W.). **Pulmonary histoplasmosis.**—*J. Louisiana med. Soc.*, 107, 1, pp. 1–6, 1955.

Three cases of pulmonary histoplasmosis (*Histoplasma capsulatum*), in a 13-year-old boy, a 39-year-old man, and a chronic case in a 64-year-old man, are reported from the Department of Internal Medicine, University of Texas, Medical Branch, Galveston. Ethyl vanillate proved of sufficient value in one case to justify further trials in very ill patients.

1546. Robertson (J. W.). **Histological survey of human appendices for Histoplasma capsulatum.**—*J. Albert Einstein med. Center*, 2, 4, pp. 147–150, 1954.

None of the 512 appendices examined in sections, stained with Hotchkiss–McManus stain, at the Department of Pathology and Surgery, Albert Einstein Medical Center, revealed the presence of *Histoplasma capsulatum*. This is of interest since Pennsylvania is an endemic area for *Histoplasma* [cf. 1, No. 1920].

1547. Salvin (S. B.) & Bell (E. J.). **Resistance of Mice with experimental histoplasmosis to infection with Rickettsia typhi.**—*J. Immunol.*, 75, 1, pp. 57–62, 1955.

In studies at the Rocky Mountain Laboratory, Hamilton, Montana, the inoculation of mice with a sublethal dose of *Histoplasma capsulatum* inhibited the effect of inoculation with an ordinarily lethal dose of *Rickettsia typhi*. This modifying effect occurred only when both agents were injected by the intraperitoneal route and when the interval between injections was sufficient to permit propagation of the fungus to a necessary level. This interval could be altered according to the number of fungus cells in the initial injection.

H. capsulatum was also capable of modifying infection by *R. tsutsugamushi*.

1548. Melnotte (P.), Senault (R.), & Mourey (M.). **L'histoplasmose de Darling. Aspects épidémiologiques de ses manifestations mineures.** [Darling's histoplasmosis. Epidemiological aspects of its minor manifestations.]—*Rev. méd. Nancy*, 79, 1–15, pp. 385–391, 1954.

After briefly reviewing the present state of knowledge regarding histoplasmosis (*Histoplasma capsulatum*), with particular reference to the symptomless forms known as 'minor' histoplasmosis, which can be detected only by reaction to skin tests with histoplasmin, the authors give the results of tests made on 1,458 persons in France, of whom 68 reacted positively, an incidence of 4·5 per cent., which is above the average of 2 per cent. for Europe, Italy excepted. Among boys and girls up to 15 years of age the frequency was 6·5 and 7·4 per cent. respectively, the corresponding figures for older persons being 3 and 1·8 respectively. No positive reactors were encountered in the under-five age group. The maximum incidence percentage of 8·03 occurred between five and 15 years, after which there was a progressive decline to a minimum of 1·07 in the 50- to 80-year group.

Of 354 children under treatment at the Preventorium, Flavigny, 49 gave a positive reaction, as compared with only one of 316 in the Hospice J. B. Thierry, Maxeville. The former group consisted of children 5 to 14 years old from industrial towns, the latter of children from 18 months living together with few contacts with the outside world up to the age of 14 and upwards.

Of the 68 positive cases, 34 were from departments in eastern France. In this connexion it is pointed out that North African immigrants mostly pass through the department of Bouches du Rhône and many of them find employment in Meurthe et Moselle, which is an industrial area; at present, 6,000 North Africans are resident there. Of eight young Algerians tested four reacted positively. Pulmonary calcifications were present in 16 of the 68 cases.

1549. Ranque (J.) & Depieds (R.). **Sur 327 tests intradermiques à l'histoplasmine effectués dans les hôpitaux de Marseille.** [On 327 intradermal tests with histoplasmin performed in the hospitals of Marseilles.]—*Bull. Soc. Path. exot.*, 48, 2, pp. 157–158, 1955.

The results of histoplasmin tests on 327 patients, including 86 from North Africa, in various hospitals at Marseilles, France, were uniformly negative [cf. 2, No. 1288 and preceding entry].

1550. Dubois (A.) & Vanbreuseghem (R.). **L'histoplasmose existe-t-elle en Belgique?** [Does histoplasmosis exist in Belgium?]—*Bull. Acad. Méd. Belg.*, Sér. VI, 19, 1, pp. 14–28, 4 figs., 1955.

Exhaustive and repeated examinations of a 47-year-old Belgian male resident in the Belgian Congo from 1929 to 1932 revealed in 1954 the presence of lingual moniliasis caused by *Candida albicans* and of a small, calcareous

nodule in the lower left parenchyma of the thorax. The latter yielded a strain of *Histoplasma* resembling *H. capsulatum* or *H. duboisii*, although some pyriform macroconidia were more typical of the former. Inoculation of hamsters [*Mesocricetus frumentarius*] and guinea-pigs by the intraperitoneal and intratesticular routes respectively, with this strain and three others from French Guiana yielded numerous *capsulatum* forms in each case.

1551. Floch (H.) & André (H.). **Présence de H. capsulatum dans le sol guyanais.** [Presence of *H. capsulatum* in the soil of Guiana.]—*Ann. Inst. Pasteur*, 89, 5, pp. 505–513, 2 figs., 1955.

At the Institut Pasteur of French Guiana and the Inini, white rats and white mice were inoculated with *Histoplasma capsulatum* obtained in four regions of the colonies [2, No. 786] from 100 samples of the soil of chicken-houses [cf. 2, Nos. 1259, 1270, and next entries], preferably in the vicinity of rat holes. The fungus was recovered from six mice and one rat killed from seven to 11 weeks later. It is pointed out that the soil throughout the territory is of the red-yellow podzolic type [2, No. 1258].

1552. Furcolow (M. L.), Menges (R. W.), & Larsh (H. W.). **An epidemic of histoplasmosis involving Man and animals.**—*Ann. intern. Med.*, 43, 1, pp. 173–181, 5 figs., 1955.

From the Communicable Disease Center, United States Department of Health, Education and Welfare, an outbreak of histoplasmosis (*Histoplasma capsulatum*) in man and animals on a farm at Atcheson, Kansas, is reported. The source of the outbreak was traced to a disused chicken-coop, from both the floor and the air space of which *H. capsulatum* was isolated [see preceding and next entries]. All five members of the family contracted the disease, the severity of the symptoms running parallel with the duration of each one's exposure to contact with the source of infection. Positive reactions to skin tests were elicited from cows and dogs on the farm and isolations were obtained from dogs and a cat. The proportion of skin test reactors among animals on neighbouring farms was markedly lower. One chicken out of 27 responded to the skin test but no cultures were obtained, and chicken-houses therefore seem more likely to be the environment favoured by the fungus than the birds themselves.

1553. Menges (R. W.) & Habermann (R. T.). **Experimental avian histoplasmosis.**—*Amer. J. vet. Res.*, 16, 59, pp. 314–320, 1955.

This is a full report from the Communicable Disease Center, Public Health Service, Kansas City, and the National Institutes of Health, Bethesda, Maryland, on the experimental inoculation of 24 chickens from Kansas farms with the mycelial and yeast phases of three strains of *Histoplasma capsulatum* [cf. preceding and next entries], two human and one first-passage chicken. Reisolation was effected only in the case of one inoculated intracardially with packed yeast cells, which died less than 21 hours later, though the results of skin and serological tests indicated that the other chickens had actually contracted infection. From these results the possibility that chickens serve as active carriers of histoplasmosis appears to be remote.

1554. White (F. C.). **Chronic pulmonary disease in histoplasmin reactors. A review of 229 cases discovered through chest clinic examinations.**—*Amer. Rev. Tuberc.*, 72, 3, pp. 274–296, 10 figs., 1955. [Spanish and French summaries.]

At the Ray Brook State Tuberculosis Clinic and Hospital, New York, 229 cases of a chronic pulmonary disease, believed to be benign histoplasmosis

(*Histoplasma capsulatum*), have been observed in histoplasmin reactors, mostly over a five- to 20-year period. The illness predominantly affected males in all age groups, and its occurrence was shown to be significantly related to exposure to certain dusts containing organic material in 53 out of 67 patients. In 27 there was a history of proximity to the habitats of poultry or pigeons [see preceding entries]; eight were concerned in threshing operations, filling silos [1, No. 2281], or handling raw wool; and in 18 two or three of the above contacts were involved. Among 123 patients 51 were farmers or occupied in rural occupations.

Epidemiological and clinical information is presented in connexion with 34 cases observed in the early stage of the disease, and a follow-up study of 11 from the Plattsburg epidemic (referred to in *Amer. Rev. Tuberc.*, 62, pp. 1–16, 1950), is also included. The clinical course of the illness is reviewed, with roentgenographic, mycological, and serological findings, and illustrated by typical cases.

1555. Halperin (A.), Pierini (D. O.), Mórtola (G.), & Acrich (M.). **Pleuresia serofibrinosa. Iniciación aparente de una histoplasmosis generalizada.** [Serofibrinous pleurisy. Apparent initiation of generalized histoplasmosis.]—*Prensa méd. argent.*, 41, 9, pp. 575–582, 4 figs., 1954.

A peculiar feature of the case of histoplasmosis (*Histoplasma capsulatum*) herein fully reported from Buenos Aires, Argentina, was its clinical initiation with serofibrinous pleurisy, which proved resistant to conventional methods of treatment, necessitating decortication. It was accompanied by lesions on the skin and buccal mucous membrane. Sulphamide therapy resulted in a marked improvement in the patient's condition. He was a 47-year-old carpenter who had always lived in contact with dogs [cf. below, 2, No. 1271].

1556. Poles (E. C.) & Lavertine (J. D. O'D.). **Acute disseminated histoplasmosis with a report of a case occurring in England.**—*Thorax*, 9, 3, pp. 233–241, 9 figs., 1954.

A fatal case of acute disseminated histoplasmosis (*Histoplasma capsulatum*), involving the larynx, lungs, and adrenals of a 45-year-old male post-office clerk, is reported from the Edgware General Hospital. Infection is believed to have been acquired in England [cf. 2, No. 519 and next entry]. Histoplasmin tests were negative and attempts at culture were unsuccessful, but the suspected diagnosis, based on histological examination of laryngeal biopsy material, was confirmed at necropsy.

1557. Leigh (R.) & Thomas (H. E.). **Benign histoplasmosis.**—*Thorax*, 10, 3, pp. 253–257, 1 fig., 1955.

A case of benign pulmonary histoplasmosis (*Histoplasma capsulatum*) in a 42-year-old male Jamaican is reported from West Heath Hospital and the Birmingham Chest Clinic [cf. preceding entry]. First seen in 1952, he had lived in Jamaica until 1944, when he went to Ohio and worked on a dairy farm until 1947. The next two years were spent in other parts of the United States, and after returning to Jamaica for a further two years he came to England in 1951. A complete cure was effected by the administration of penicillin (3,000,000 units daily for three days, followed by 2,000,000 daily for a fortnight).

1558. Panja (G.) & Sen (S.). **A unique case of histoplasmosis.**—*J. Indian med. Ass.*, 23, 6, pp. 257–258, 7 figs., 1954.

A fatal case of histoplasmosis (*Histoplasma capsulatum*), the first to be

recorded in India, involving the skin and viscera in a 48-year-old male Hindu, is described from the School of Tropical Medicine, Calcutta. Typical intracellular elements, some surrounded by a clear halo simulating a capsule, were revealed by microscopic examination and biopsy, and a fungus isolated in pure culture from the pus was under investigation at the time of writing. Various lines of treatment were undertaken, including sulphadiazine, but all proved unavailing.

1559. Rowley (D. A.) & Huber (Margret). **Pathogenesis of experimental histoplasmosis in Mice. I. Measurement of infecting dosages of the yeast phase of Histoplasma capsulatum.**—*J. infect. Dis.*, 96, 2, pp. 174–183, 1 graph, 1955.

At the National Institutes of Health, Bethesda, Maryland, four strains of *Histoplasma capsulatum* [see next entries], two from man, one from a cat [2, No. 1041], and one from a skunk [*Mephitis* (?) *hudsonica*: 1, No. 1689], were grown in the yeast phase on a complex whole blood-containing medium under standardized conditions. Descriptions are given of a technique for obtaining suspensions of small aggregates of yeast cells, of a method for determining their *in vitro* viability, and of the necessary conditions for securing suspensions with a high percentage of viable aggregates and maintaining a constant number of the latter in a suspension. Data are presented which strongly suggest that under such conditions an *in vitro* test for viability is an accurate index of the number of infective aggregates in a suspension.

1560. Rowley (D. A.) & Huber (Margret). **Pathogenesis of experimental histoplasmosis in Mice. II. Comparison of the intravenous and intraperitoneal routes of infection; comparison of the pathogenicity of four strains of Histoplasma capsulatum.**—*J. infect. Dis.*, 97, 1, pp. 27–34, 2 graphs, 1955.

For two of the four strains of *Histoplasma capsulatum* used in these studies [see Nos. 1559 and 1561], dosages of 2 to 8×10^6 yeast cells per mouse were more lethal when injected intravenously than by the intraperitoneal route. In either case, however, infections developed regularly with an estimated 100 aggregates of yeast cells per mouse. When the intravenous method was employed, the lethal effects of 8×10^6 yeast cells per mouse were similar for the four strains, which were chosen on account of their varied history and cultural characters. Three of the strains regularly produced infections with an estimated 10 aggregates of yeast cells per mouse; two out of 20 mice were apparently not infected by the same dosage from the remaining strain. No significant differences in pathogenicity were observed between the four strains.

1561. Rowley (D. A.) & Pine (L.). **Some nutritional factors influencing growth of yeast cells of Histoplasma capsulatum to mycelial colonies.**—*J. Bact.*, 69, 6, pp. 695–700, 1 fig., 1 graph, 1955.

At the National Microbiological Institute, Bethesda, Maryland, cultures containing media inoculated with small numbers of washed, small aggregates of yeast cells of *Histoplasma capsulatum* [see preceding entries] were incubated at 28° to 30° C. Comparison of culture counts on various liquid and solid media with casein hydrolysate or a synthetic casein eight to 12 days after inoculation showed that for good germination and growth of yeast cells to mycelial colonies calcium pantothenate was required by only one strain out of four. The addition of potassium phosphate to agar-containing media inhibited growth. The amino-acid requirements are complex and vary with different strains.

1562. Sachs (D.), Smith (R. T.), Fleming (D. S.), & Furcolow (M. L.). **The prevalence of positive reactions to tuberculin and histoplasmin in a rural Minnesota county.**—*Amer. J. Hyg.*, 62, 1, pp. 43–53, 5 diags., 2 graphs, 1955.

Of 3,949 schoolchildren resident in Wright County, Minnesota, 310 (7·8 per cent.) reacted positively to histoplasmin skin injections, the corresponding figures for 5,541 tested with tuberculin being 61 (1·1). The percentage of positive reactors ranged from 3·4 in the five- to six-year-old group to 11·3 in that of 15 to 16 years. Higher rates were found among children living on farms (8·8) than in the village population (6·3), and in the south-eastern section of the county (20 to 30) than in the north-western (0 to 5).

1563. Salvin (S. B.) & Ribi (E.). **Antigens from yeast phase of Histoplasma capsulatum. II. Immunologic properties of protoplasm vs. cell walls.**—*Proc. Soc. exp. Biol., N.Y.*, 90, 1, pp. 287–294, 4 figs., 1955.

From the National Microbiological Institute, Rocky Mountain Laboratory, Hamilton, Montana, a method involving the use of the Mickle tissue disintegrator (H. Mickle Co., Hampton, England), and the electron microscope is described for the separation of the cell wall from the internal protoplasm in the yeast phase cells of *Histoplasma capsulatum*. The cell wall contained the antigenic property associated with complement-fixation, protection, and toxins, but the protoplasm was more active in the haemolysis of erythrocytes. The reactions of sensitized mice and guinea-pigs to both fractions were of the delayed type.

1564. Sandidge (L. L.). **Histoplasmosis.**—*J. Kans. med. Soc.*, 56, 6, pp. 306–311, 1955.

The physical and laboratory findings in 12 cases of histoplasmosis (*Histoplasma capsulatum*) diagnosed at the University of Kansas Medical Center are tabulated, together with the clinical and laboratory data in nine of the same series. Information is also summarized from the relevant literature on the history, diagnosis, and treatment of the disease.

1565. Schwarz (J.), Silverman (F. N.), Adriano (S. M.), Straub (M.), & Levine (S.). **The relation of splenic calcification to histoplasmosis.**—*New Engl. J. Med.*, 252, 21, pp. 887–891, 8 figs., 1955.

Examination of 120 unselected spleens from autopsies at the Cincinnati General Hospital and the Jewish Hospital, Cincinnati, revealed the presence in 62 per cent. of 'typical' calcified lesions recognizable roentgenographically and microscopically [2, No. 1566]. This percentage agrees closely with the rate of positive skin reactions to histoplasmin in an endemic area and is compared with percentages of 29 for Rotterdam, Holland, and 27 for New York, where histoplasmosis (*Histoplasma capsulatum*) is not endemic. Cultures of the fungus were not obtained, but objects morphologically consistent with *H. capsulatum* were demonstrated histologically in considerable numbers in 47 per cent. of spleens bearing the 'typical' foci. It is concluded that, in an endemic area, histoplasmosis often becomes disseminated in the blood stream, with metastases in the spleen, without modifying the generally excellent prognosis.

1566. Straub (M.) & Schwarz (J.). **Healed primary complex in histoplasmosis.**—*Amer. J. Path.*, 31, 3, p. 599, 1955.

Healed pulmonary lesions of histoplasmosis [*Histoplasma capsulatum*: 1, No. 1909; 2, No. 1565] were detected in 65 per cent. of 105 consecutive, unselected necropsies on patients at the Jewish Hospital, Cincinnati, Ohio, the organisms being demonstrated in the calcified areas of the lungs or lymph nodes or both by means of the Gridley stain.

1567. Haas (R.). **Histoplasmosis in a Maine resident.**—*J. Maine med. Ass.*, 46, 3, pp. 66–67, 1955.

A case of benign pulmonary histoplasmosis (*Histoplasma capsulatum*) in a 27-year-old female patient is reported from the Central Maine General Hospital, Lewiston. A previous attack of fever and cough, accompanied by loss of weight, had occurred seven years earlier. A chest X-ray revealed disseminated parenchymal and hilar calcifications, while a histoplasmin skin test elicited a strongly positive reaction. An apparently complete recovery was made. The disease is a rarity in New England, the first report dating from 1953 [2, No. 532]. However, skin tests covering an 18-month period at the V.A. Pulmonary Clinic, Brooklyn, New York, yielded 19 positive reactors with pulmonary lesions and no evidence of tuberculosis. The possibility of infection ought therefore to be considered in any differential diagnosis of unusual pulmonary lesions or disseminated calcifications.

1568. Vanbreuseghem (R.). **Dimorphisme parasitaire et dimorphisme saprophytique de l'Histoplasma duboisii Vanbreuseghem 1952.** [The parasitic and saprophytic dimorphism of *Histoplasma duboisii* Vanbreuseghem 1952.]—*Proc. eighth int. Congr. Bot., 1954*, pp. 123–124, 1954.

After pointing out that *Histoplasma duboisii* [2, No. 1284] has two different morphological aspects in the parasitic state, one apparently identical with *H. capsulatum* and the other completely distinct [2, No. 795], the author proposes that the expressions 'état parasitaire' (parasitic state) and 'état saprophytique' (saprophytic state) should be adopted to distinguish the parasitic and the saprophytic states of one and the same fungus, while 'phase mycélienne' (mycelial phase) and 'phase levure' (yeast phase) should designate different morphological aspects of a fungus in its saprophytic state. 'Form' should be used to indicate a particular morphological aspect of the fungus in its parasitic state. Thus, for example, *Sporotrichum schencki* has a parasitic and a saprophytic state, a mycelial phase in culture at 25° C. and a yeast phase in culture at 37°; further, in the tissues in its parasitic state it assumes a 'navette' [rape], a *Cryptococcus*, and an 'asteroid' form.

1569. Vogel (R. A.), Michael (M.), & Timpe (Alice). **Cortisone in experimental histoplasmosis.**—*Amer. J. Path.*, 31, 3, pp. 535–543, 3 figs., 1955.

At the Emory University School of Medicine, Atlanta, Georgia, guinea-pigs inoculated with the yeast phase of *Histoplasma capsulatum* were given immediate and delayed treatment with cortisone [cf. 2, No. 1280], administered daily for 45 days at a dose of 5 mg. by intraperitoneal injection. No significant difference in mortality or morbidity was observed in either group as compared with the controls (inoculated and untreated, normal and treated with cortisone, and normal, untreated) over a 60-day period, and the serological response of all groups was essentially identical. However, evidence of wider dissemination of the fungus in the cortisone-treated animals was obtained from impression smear cultures of the spleen and microscopic examination of haematoxylin and eosin smears.

1570. Hilsont (P.) & Verge (J.). **Recherches sur le diagnostic allergique de la lymphangite épizootique du Cheval par l'histoplasmine.** [Studies on the allergic diagnosis of epizoötic lymphangitis of the Horse by histoplasmin.]—*Ann. Inst. Pasteur*, 87, 6, pp. 737–738, 1954.

Notwithstanding the apparent relationship between *Histoplasma capsulatum* and *Cryptococcus farciminosus*, negative results were given at the Veterinary

College, Alfort, France, by experiments in the application of histoplasmin for the allergic diagnosis of equine epizoötic lymphangitis.

1571. Grasset (J.), Senèze (J.), & Gauthier (R.). **Contribution a l'étude des mycoses vulvo-vaginales.** [A contribution to the study of vulvo-vaginal mycoses.]—*Bull. Soc. Gynéc. Paris*, 6, 2, pp. 181–185, 1954.

Of 424 vaginal isolations from cases of leucorrhoea made in Paris during a period of eight months, 46 (or 11 per cent.), showed the presence of fungal infection. Of these, 30 were from cases of pregnancy and the species concerned was a member of the *Candida albicans* group in four cases, one of the *C. krusei* group in two, and one of the *C. tropicalis* group in one. Of the isolations from the other 16 patients, five belonged to the *C. albicans* group, two to the *C. krusei* group, and one to the *C. tropicalis* group.

1572. Garnier (G.) & Vieu (J. P.). **Recherche systématique des levures sur les muqueuses génitales avant et après antibiotiques.** [Systematic study of the yeasts on the genital mucous membranes before and after antibiotics.]—*Bull. Soc. franç. Derm. Syph.*, 62, 1, pp. 61–62, 1955.

On admission to the Hôpital Saint-Lazare, Paris, the vaginal mucous membranes of 32 out of 200 patients were found to harbour yeasts (30 *Candida albicans*, one *C. krusei*, and one azymatic), and the incidence remained unchanged after brief courses (up to 12 days) of antibiotic therapy, using streptomycin, aureomycin, and penicillin.

1573. Gaudefroy (M.) & Viart (P.). **Influence des antibiotiques sur la recrudescence actuelle des vaginites mycosiques.** [The influence of antibiotics on the present recrudescence of cases of mycotic vaginitis.]—*Ann. Biol. clin.*, 13, 3–4, pp. 113–120, 1955.

The authors give clinical details of 12 cases of vaginitis due to *Candida albicans* out of 27 observed by them in 1953 and 1954, all the 27 patients having received heavy doses of penicillin, aureomycin, or chloromycetin, used singly, or of several antibiotics used together. A list of 36 references is appended.

1574. Caplan (H.). **Monilial (Candida) endocarditis following treatment with antibiotics.**—*Lancet*, 269, 6897, pp. 957–958, 3 figs., 1955.

A man aged 43 was admitted to New End Hospital, Hampstead, London, for repair of a perforated duodenal ulcer. A month later a partial gastrectomy was performed and various antibiotics were administered. He was discharged after four months in hospital but four months later he developed symptoms of occlusion of the left femoral artery and an apical systolic murmur. He died four weeks later. Post-mortem examination showed profuse fungal mycelium in the mitral valve and iliac arteries. The fungus was not isolated but was suspected to be *Candida albicans*. It is suggested that the protracted courses of antibiotics he received may have 'encouraged the production of systemic moniliasis'.

1575. Browne (S. G.). **Moniliasis following antibiotic therapy.**—*Lancet*, 266, 6808, pp. 393–395, 1954.

A European male aged 43, who had been living in the Belgian Congo for eight years, was treated for amoebic hepatitis with succinyl sulphathiazole, 'diodoquin', emetine hydrochloride (0·48 gm.), and penicillin (6,500,000 units). This caused great improvement, but on the last day of treatment a cough and sore throat developed. After three weeks' illness, the patient expectorated pieces of yellowish pink, membraneous material from which *Candida albicans*

was cultivated, and similar expectorations continued for four weeks. Treatment with potassium iodide and painting of the oral lesions with gentian violet were instituted, and the patient was sent to England. The fungus can still be found in the bronchial secretion, and on two occasions small pieces of membrane have been expectorated, but no treatment has been required.

1576. Hattori (Z.). **Effect of antibiotics on Candida albicans and remedies for moniliasis.**—*Rep. Takamine Lab.*, 5, pp. 98–102, 1953. [Abs. in *Chem. Abstr.*, 49, 21, col. 14896, 1955.]

In *in vitro* tests at the Takamine Laboratory, Sankyo Company, Tokyo, penicillin G, penicillin K, dihydrostreptomycin, and chloramphenicol exerted no effect on the growth of *Candida albicans* on Sabouraud's glycerol medium. Tested by the circular filter paper method, inhibition was effected by gentian violet, fuchsin, methylene blue (in the order given), Lugol's solution (diameters of inhibition zones, 21 and 15 mm. at standard strength and five-fold dilution, respectively), sodium ethyl mercurisalicylate (no growth at 100-fold dilution, zones of 35 and 16 mm. at dilutions of 1,000 and 1,000,000 respectively), *Chenopodium* oil (11 to 13 mm. at various concentrations), and hyamine 1622 (five to ten times as effective as against *Salmonella* and *Staphylococcus* spp.).

1577. Hultin (M.). **Candidos och antibiotica.** [Candidosis and antibiotics.]—*Svensk Tandläk. Tidskr.*, 47, 5, pp. 441–451, 4 figs., 1954. [English summary.]

The use of broad-spectrum antibiotics with persistent effects is stated to have become increasingly common in dental practice of recent years, and the opinion is widely held that some connexion may exist between this mode of therapy and infection by *Candida* spp., notably *C. albicans*. Two cases (an eight-year-old boy and his five-year-old sister treated for measles by this method) are reported from the Dental College, Stockholm, to illustrate this hypothesis and a bibliography of 35 titles is appended.

1578. Winter (W. D.). **Candida (Monilia) infections in children.**—*Pediat. clin. N. Amer.*, 2, pp. 151–161, 1955.

The author stresses the increasing importance of *Candida* infections in children in current practice in the United States and describes in detail the two common types of infection, superficial and systemic. So far, no really effective treatment is known. Antibiotic therapy, recently observed to result in increased *Candida* infections, should be avoided in the presence of the fungus. Besides *C. albicans*, the commonest species in human infections, deaths have been recorded from disseminated disease caused by *C. tropicalis* and *C. pseudotropicalis*, and from localized disease caused by *C. krusei* and *C. parapsilosis*.

1579. De Graciansky (P.), Leclercq (R.), Delaporte (J.), & Gouin de Roumilly (P.). **Les dermatoses à levures au cours des traitements par les antibiotiques. I. Introduction. II. Étude clinique. III. Étude pathogénique et thérapeutique (avec mention particulière de l'incidence des avitaminoses).** [Dermatoses caused by yeasts in the course of antibiotic treatments. I. Introduction. II. Clinical study. III. Pathogenic and therapeutic study (with particular reference to the incidence of avitaminoses).]—*Sem. Hôp., Paris*, 31, 37/5, pp. 2162–2182, 10 figs. (8 col.), 1955.

Following a brief introduction, this important study opens with a critical analysis, based on experience in Paris hospitals and a consultation of 115 contributions to the pertinent literature, of the various cutaneo-mucous

manifestations arising in the course of antibiotic therapy and attributed to infection by *Candida albicans*. A distinction is made between conditions incontestably due to the fungus, e.g., thrush, a specialized form of intertrigo, and subcutaneous abscesses, and others in which the role of the fungus is dubious, such as bucco-pharyngeal and perianal disturbances.

The concluding section comprises a discussion of the various theories advanced to explain the development of the pathogen in the course of antibiotic therapy, with special reference to avitaminosis, and an account of *in vitro* and *in vivo* experiments (the latter on white rats), the results of which supported the view that infection is favoured by vitamin B_2 deficiency [cf. next entry].

1580. Rimbaud (P.) & Rioux (J. A.). **Les moniliases au cours des traitements par les antibiotiques. Conceptions pathogéniques.** [Moniliasis in the course of antibiotic treatments. Pathogenic concepts.]—*Pr. méd.*, 63, 34, pp. 701–702, 1 diag., 1955.

Various factors contributing to the development of moniliasis (*Candida albicans*) in the course of antibiotic therapy are discussed. At the Dermatological Clinic, Montpellier, France, 15 three-month-old rabbits were inoculated subcutaneously with 2 ml. of a suspension of the fungus containing 50,000 blastospores per cu. mm. At the same time penicillin, aureomycin, and chloramphenicol were administered, singly or in combination, in massive doses (up to 1 gm. daily of the last-named). No generalized development of infection ensued. The results of further studies corroborated Brisou's theory that antibiotics destroy the normal colic flora, with their powerful capacity for the synthesis of vitamins, notably B_2 [cf. preceding entry], thereby permitting the uncontrolled growth of the pathogen, which is not affected by the treatment. Hence the most effective prophylaxis against the development of moniliasis during prolonged antibiotic therapy will be secured by the simultaneous regular administration of vitamin B_2. Only one of 40 patients treated for various dermatoses with a combination of sanclomycin and vitamin B_2 contracted infection by *C. albicans*.

1581. Skobel (P.), Jorke (D.), & Schabinski (G.). **Akute, generalisierte Mykose. Sepsis durch Candida pseudotropicalis.** [Acute, generalized mycosis. Sepsis caused by *Candida pseudotropicalis*.]—*Münch. med. Wschr.*, 97, 7, pp. 194–197, 7 figs., 1 graph, 1955.

This is a joint report from the University Medical Clinic and the Institute of Hygiene of the Friedrich Schiller University, Jena, Germany, on a case of generalized septicaemia caused by *Candida pseudotropicalis* in a 25-year-old nurse at an infants' clinic. The illness began to develop a fortnight after the extraction of a wisdom tooth and terminated fatally within 16 days, the symptoms being those of bilateral parahilar pneumonia and generalized lymph node swelling. The autopsy revealed the fungus in the lungs, spleen, and other organs [see next entry]. Cultures were obtained on a modified Sabouraud-beer wort agar and their pathogenicity demonstrated by inoculation experiments on guinea-pigs and rabbits.

1582. Beuthe (D.). **Candidasepsis.** [*Candida* sepsis.]—*Zbl. allg. Path. path. Anat.*, 93, 6–7, pp. 241–245, 4 figs., 1955.

This is a report of the autopsy on the case of septicaemia caused by *Candida pseudotropicalis* described in the preceding entry.

1583. Grill (R.) & Nikolowski (W.). **Kaugummi, Penicillin und Mundflora.** [Chewing gum, penicillin, and oral flora.]—*Med. Klin.*, 50, 2, pp. 93–94, 1955.

At the University Skin Clinic, Tübingen, Germany, four hours' chewing of penicillin-containing gum tablets by 50 patients aged between 12 and 57 years resulted in well-marked stimulation of the thrush fungus (*Candida albicans*) [see next entry] colonies in 22 per cent.

1584. Mülhens (K.). **Die Mykosen der Schleimhäute und inneren Organe und ihre therapeutische Beeinflussung.** [Mycoses of the mucous membranes and internal organs and the operation of therapeutants thereon.]—*Med. Klin.*, 50, 34, pp. 1415–1418, 1955.

At the Medical Diagnostic Institute, Hamburg, Germany, a number of antibiotics and sulphonamides were tested for their action on *Candida albicans* [see preceding entry] on a liquid medium. Growth was totally inhibited by 0·5 per cent. aureomycin, 0·05 per cent. tyrosolvin (tyrothricin in a cetylpyridiniumchloride solvent), the last-named alone at 0·005 per cent., 1 per cent. marbadal, 0·5 per cent. supronal, 2 per cent. salicylamide, 0·25 per cent. dibromosalicyl, 8 per cent. conteben, 1 per cent. neoteben, 0·125 per cent. thiosemicarbazone of enatnaldehyde, 0·06 per cent. thiosemicarbacide, 0·015 per cent. surfen, 0·03 per cent. fatty acid ester d. 9–11 carbonic acids, 0·06 per cent. hexylresorcin [1, No. 1528], 0·25 per cent. hexachlorophen, and 0·5 per cent. targesin. The problem of the stimulus afforded by antibiotic therapy to the development of *C. albicans* and related yeasts is discussed with reference to the relevant literature.

1585. Herbeuval (R.), Herbeuval (Mme H.), Cuny (G.), Debry (G.), & Manciaux (M.). **Pneumopathie aiguë à Candida pseudotropicalis.** [Acute pneumopathy due to *Candida pseudotropicalis*.]—*J. franç. Méd. Chir. thor.*, 9, 2, pp. 160–172, 9 figs., 1955.

This is a very detailed report from Nancy, France, of a case of acute pneumopathy in a 67-year-old female, in which convincing proof was obtained of the etiological role of *Candida pseudotropicalis* [cf. 2, No. 806]. A complete cure was effected by an intensive course of potassium iodide therapy.

1586. Moll (C. F.) & Johnson (C. G.). **The use of a new drug, acrizane chloride, for the treatment of yeast vaginitis.**—*J. Louisiana med. Soc.*, 107, 7, pp. 272–276, 1955.

Complete cure of yeast vaginitis (*Candida albicans*) by both clinical and laboratory standards is reported in 28 out of 38 cases treated with acrizane chloride vaginitis cream (produced by the Abbott Laboratories) at the Department of Gynaecology and Obstetrics, Browne–McHardy Clinic, and Tulane University School of Medicine, New Orleans, Louisiana. Seven additional cases showed definite improvement. The cream, which is safe to use during pregnancy, is non-toxic, and leaves no permanent staining or damage to clothing or linen; it is applied at a concentration of 5 mg. per ml. for 15 minutes or less in a dilution of 1:20,000.

1587. Hesseltine (H. C.). **Vulvitis : due to mycosis, atrophy, and avitaminosis.**—*Amer. Practit.*, 6, 6, pp. 864–867, 1955.

The form of vulvitis caused by *Candida albicans* is stated in this contribution from the Department of Obstetrics and Gynaecology, University of Chicago, and the Chicago Lying-In Hospital, to be almost invariably encountered in patients suffering from uncontrolled diabetes mellitus. The lesions respond

to the application of 1 per cent. gentian violet in glycerin, but a few subjects develop sensitization to the dye, with resultant oedema and acute pain. Excellent results have been obtained with a product known as 'acijel', containing 3 per cent. ricinoleic acid and 0·5 per cent. oxyquinoline sulphate [1, No. 2299].

1588. Brygoo (E. R.) & Courdurier (J.). **Comportement des levures du genre Candida en présence de diverses substances colorantes.** [Behaviour of yeasts of the genus *Candida* in the presence of various dyes.]—*Ann. Inst. Pasteur*, 89, 6, pp. 692–696, 1955.

Of 33 dyes tested at the Institut Pasteur of Madagascar for their inhibitory action on 69 strains of *Candida*, comprising 21 of *C. albicans*, 18 of *C. parakrusei*, 11 of *C. guilliermondi*, seven each of *C. krusei* and unspecified 'azymatic' yeasts, three of *C. pelliculosa*, and two of *C. tropicalis*, the most active were methyl violet, brilliant green, and malachite green [cf. preceding entry].

1589. Alslev (J.) & Gessler (U.). **Klinische Bilder der Lungenmoniliasis.** [Clinical pictures of pulmonary moniliasis.]—*Aerztl. Wschr.*, 10, 15–16, pp. 343–349, 3 figs., 1 graph, 1955.

Ten cases of pulmonary moniliasis (*Candida albicans*) [cf. next entry] are described from the Medical Clinic of Kiel University, Germany, and discussed in relation to the problem of antibiotic therapy.

1590. Janke (D.). **Zur Diagnostik der Lungenmoniliasis mit Hilfe der Serumfungistase.** [On the diagnosis of pulmonary moniliasis with the aid of serum fungistasis.]—*Aerztl. Wschr.*, 10, 15–16, pp. 349–352, 3 figs., 2 graphs, 1955.

From the University Skin Clinic, Marburg a.d. Lahn, Germany, the author describes a test-tube and a micro-method whereby the presence of antisera can be detected in the serum of persons suffering from mycotic diseases. The following are among the results of the examination of 900 sera by these procedures. Serum fungistasis proved to be generally specific in cases of hyphomycetous infections, pulmonary and generalized moniliasis (*Candida albicans*), and secondary 'moniliids' accompanying primary skin infection (of which two cases are reported). The serological and mycological aspects of Alslev and Gessler's 10 cases of pulmonary moniliasis [see preceding entry] are also examined.

1591. Janke (D.). **Untersuchungen zum Pathogenitätsnachweis von Candida albicans.** [Studies on the demonstration of pathogenicity in *Candida albicans*.] —*Proc. eighth int. Bot. Congr., 1954*, pp. 122–123, 1954. [French summary.]

From the University Skin Clinic, Marburg a.d. Lahn, Germany, the author reports that a specific antibody can be demonstrated in the serum of patients harbouring yeast-like fungi of the *Candida* group, including *C. albicans* [cf. 2, No. 337], indicating that in a given case these normally saprophytic organisms may acquire a pathological significance.

1592. Ambrosioni (P.), Masoni (S.), & Zuliani (A.). **Ricerche sperimentali 'in vitro' sull' interferenza esplicata da miceti nell' azione antibatterica di alcuni antibiotici. Parte I.** [Experimental studies '*in vitro*' on the interference exerted by fungi on the anti-bacterial action of some antibiotics. Part I.]—*Boll. Ist. sieroter. Milano*, 33, 11–12, pp. 590–596, 3 graphs, 1954. [English summary.]

At the Institute of Hygiene, University of Modena, Italy, the presence of *Candida albicans* [see next entry] in a liquid culture increased (often appre-

ciably) the minimal doses of penicillin, aureomycin, streptomycin, chloramphenicol, terramycin, subtilin, and polymyxin [1, No. 1539 *et passim*] requisite to inhibit the growth of *Staphylococcus pyogenes* and *B*[*acillus*: *Escherichia*] *coli*.

1593. Nassi (L.). **Sull'attività antimicotica esplicata in vitro da un derivato dell' ammonio quaternario sopra alcuni ceppi di Candida albicans.** [On the antimycotic activity exhibited *in vitro* by a derivative of quaternary ammonium against certain strains of *Candida albicans*.]—*Boll. Soc. ital. Biol. sper.*, 31, 3–4, pp. 363–365, 1955.

At the Pediatric Clinic of the University of Florence, Italy, the author tested the activity of a commercial preparation known as 'omega', synthesized from a quaternary ammonium derivative [2, No. 904] by Dr. A. Alitti of the firm of Molteni, against five strains of *Candida albicans* [see preceding entry], three from infants with pulmonary moniliasis, one from a case of oral thrush, and one from the laboratory, on Sabouraud's liquid medium. The growth of one strain was inhibited at a dilution of 1 in 800,000 and that of the other four at 1 in 200,000.

1594. Drouhet (E.). **Traitement des infections mycosiques à Candida albicans par un nouvel antibiotique antifongique : la nystatine.** [Treatment of mycotic infections due to *Candida albicans* by a new anti-fungal antibiotic: nystatin.] —*Pr. méd.*, 63, 30, pp. 620–623, 4 figs., 2 graphs, 1955.

In studies at the Institut Pasteur, Paris, nystatin [mycostatin: 2, Nos. 1352, 1523] inhibited the growth *in vitro* of numerous strains of *Candida albicans* and *C. pseudotropicalis* and five of *Geotrichum* sp. at concentrations ranging from 1·56 to 12·5 μg. per ml. Administered parenterally at a dosage of 40 mg. daily for five days, the antibiotic reduced the mortality in rabbits inoculated intravenously with *C. albicans* from 100 to 62·5 per cent. In 35 cases of human infection mycostatin, administered at dosages of 0·2 to 1 gm. daily over a period of 45 days, proved remarkably efficacious in the relief, e.g., of digestive and urinary disturbances, toxaemia, and oral lesions. There were three relapses a fortnight after the discontinuance of treatment.

1595. Gale (G. R.). **The effects of β-propiolactone on the metabolism of Candida albicans.**—*J. infect. Dis.*, 96, 3, pp. 250–258, 6 graphs, 1955.

In *in vitro* experiments at the Duke University School of Medicine, Durham, North Carolina, the growth of *Candida albicans* was inhibited for four to seven hours by β-propiolactone (betaprone) [cf. 2, Nos. 875, 965] at a concentration of 0·15 mg. per ml. and for up to 76 hours at 0·5 mg. The oxidation of added substrates, such as glucose, amino acids, pyruvate, acetate, and fatty acids, was inhibited. As already indicated by previous studies [loc. cit.], the primary site of action of betaprone appears to be at or near the cell surface.

1596. Gelli (G.). **Micosi (candidosi) polmonare in forma cavitaria (particolare riferimento al trattamento chirurgico).** [Mycosis (candidosis) in cavitary form (with particular reference to surgical treatment).]—*Riv. Clin. pediat.*, 54, 3, pp. 155–187, 22 figs. (1 col.), 1 graph, 1954. [French and English summaries.]

Candida albicans var. *stellatoidea* [*C. stellatoidea*] was responsible for a case of the cavitary form of pulmonary mycosis in a 10-year-old girl at the Children's Clinic of the University of Pisa, Italy [see next entry]. The diagnosis was confirmed by the detection of the organism in the sputum, serological and allergic tests, experiments on laboratory animals, histopathological observations, and cultures from the diseased tissues. Negative results were given by

all attempts at therapy with antibiotics, vaccines, novex, and potassium iodide, and lobectomy was therefore performed at a relatively early stage, culminating in a complete cure. This is claimed to be the first record of the operation on a child. [An abbreviated version of this paper appears in *Lattante*, 25, pp. 619–621, 1954.]

1597. Gelli (G.). & Nieri (I.). **Il quadro proteico ematico nelle micosi umane e sperimentali.** [The blood protein picture in the human and experimental mycoses.]—*Minerva paediat.*, 7, 1–2, pp. 32–36, 1 fig., 1 graph, 1955.

From the Paediatric Clinic of the University of Pisa, Italy, the authors report a case of pulmonary mycosis due to *Candida stellatoidea* in a 10-year-old girl [see preceding and next entries], characterized primarily by dysprotidaemia with an increase of the $alpha_2$ fractions and gamma globulins some months after the beginning of the illness. Inoculation experiments on rabbits with the same fungus, *C. albicans*, and *C. parapsilosis* also resulted in an increase of the $alpha_2$ fractions, but in contrast to the human infection the gamma globulin content was almost invariably diminished.

1598. Miura (O.) & Kusunoki (S.). **On heat resistance of genus Candida : a method proposed for pathogenic discrimination of Candida albicans.**—*Tohoku J. exp. Med.*, 60, 3–4, pp. 283–288, 1954.

A comparison at the Department of Dermatology, Faculty of Medicine, Nihon University, Tokyo, of six strains of *Candida albicans* obtained from pathological foci and five isolated from the faeces of persons in normal health [see next entry] demonstrated the ability of the former to withstand three minutes' exposure to a temperature of 57° to 58° C., whereas the latter succumbed at 54° to 55°. Two strains of *C. albicans* of unknown origin also fell into the second group, as did *C. tropicalis*, *C. pseudotropicalis*, and *C. stellatoidea* [cf. preceding entry], while *C. parakrusei* approached the pathogenic isolates in thermostability and *C. guilliermondi* occupied an intermediate position. The reactions to five and ten minutes' treatment were similar but even more pronounced; 30-minute exposures gave confused results from which no conclusions could be deduced.

1599. Miura (O.) & Kusunoki (S.). **Absorption of crystal violet by Candida albicans (a method proposed for pathogenic discrimination of Candida albicans).**—*Tohoku J. exp. Med.*, 61, 1, pp. 23–26, 1954.

Using the strains of *Candida albicans* already referred to [see preceding entry], the writers found that those of pathogenic origin absorbed crystal violet added to Sabouraud's dextrose agar at a concentration of $10/2 \times 10^{-6}$, whereas the representatives of the saprophytic group were unable to do so. This would appear, therefore, to be a useful method of determining pathogenicity within the species, but strict attention should be paid to the maintenance of a correct dilution, anomalous results having been obtained at concentrations exceeding $10/2 \times 10^{-6}$ or below $10/4 \times 10^{-6}$, inclusive.

1600. Jonsen (J.), Rasch (S.), Strand (A.), & Thjøtta (T.). **Quantitative agglutination studies in fungi. 3. The specificity of agglutinins in rabbit yeast antisera.**—*Acta path. microbiol. scand.*, 36, 6, pp. 558–567, 1955.

In further studies in this series at the Wilhelmsen Bacteriological Institute, Oslo, Norway [2, No. 1046 and next entry], antigens on the surface of *Candida albicans* cells were shown to be fairly stable under acid or heat treatment. Antigens on cells prepared from media containing 2 per cent. raffinose exhaust antisera to those grown on 2 per cent. glucose. The velocity of the combina-

tion between *C. albicans* cells and homologous antibodies is of the same order as in bacterial agglutinations.

The following serological groups within the genus *Candida* were established: (i) *C. albicans* and *C. stellatoidea*; (ii) *C. pseudotropicalis* and its var. *lactosa* and *C. macedoniensis*; (iii) *C. krusei* and *C. mycoderma*; and (iv) *C. utilis* and *C. curvata.*

1601. Jonsen (J.). **Serological studies in fungi. Comparison of agglutinins and precipitins in anti-Candida sera.**—*Acta path. microbiol. scand.*, 37, 1, pp. 79–83, 1955.

The results are reported and tabulated of further studies in the current series at the Wilhelmsen Bacteriological Institute, Oslo, Norway [2, Nos. 820, 1046], involving the determination of agglutinins and precipitins in sera from rabbits containing antibodies against *Candida pseudotropicalis*, *C. tropicalis* and its var. *lambica*, *C. albicans*, and *C. stellatoidea.* It was demonstrated that most of the antibodies are directed towards a polysaccharide component in the yeast cell.

1602. Jonsen (J.), Rasch (S.), & Strand (Å.). **Specific polysaccharides in genus Candida. I. Preparation and properties of water soluble fractions.**—*Acta path. microbiol. scand.*, 37, 5, pp. 449–458, 1 diag., 1955.

Further information is presented and tabulated on the methods of isolation and chemical properties of the active polysaccharide fractions obtained from 20 species of *Candida* at the Wilhelmsen Bacteriological Institute, Oslo, Norway [2, No. 1601].

1603. Lachance (R.). **Moniliase broncho-pulmonaire.** [Broncho-pulmonary moniliasis.]—*Un. méd. Can.*, 84, 2, pp. 158–163, 3 figs., 1955.

Following a summary of the available information on the geographical distribution, etiology, symptomatology, diagnosis, and therapy of broncho-pulmonary moniliasis (*Candida albicans*), the author reports a case of the disease in a 23-year-old male patient at the Sanatorium Begin, Dorchester County, Quebec, who responded favourably to the daily administration of massive doses of potassium iodide (up to 60 grains) and has remained in excellent health since his discharge.

1604. Mackintosh (J. W.), Gray (J. D.), & Jones (C. M.). **Treatment of broncho-pulmonary moniliasis with CMA 37.**—*Canad. med. Ass. J.*, 72, 12, pp. 903–907, 2 figs., 1955.

Following a review of the present status of moniliasis (*Candida albicans*), the authors describe a case involving both lung fields in a 32-year-old female patient at the Halifax Infirmary, Halifax, Nova Scotia, who was successfully treated with CMA 37, an analogue of chloramphenicol. Clinical and laboratory findings relative to the use of the drug are presented.

1605. Möller (A.). **Über Soor und Cardiospasmus mit extrarenaler Urämie.** [On thrush and cardiospasm with extrarenal uraemia.]—*Z. ärtzl. Fortbild.*, 49, 7, pp. 223–226, 2 figs., 1955.

A remarkable case of severe thrush (*Candida albicans*), complicated by a spasm in the cardiac end of the oesophagus and extrarenal uraemia, in a 48-year old female is reported from the Municipal Hospital, Weimar, Germany. Complete recovery followed the breaking of the spasm with a Stark's catheter.

1606. Monod (R.) & Mahassen (M.). **Intêret grandissant des mycoses pulmonaires. À propos d'un cas à forme hémoptoïque de blastomycose pulmonaire traité par résection chirurgicale et guéri.** [Increasing interest of pulmonary mycoses. In connexion with a case of the haemoptoic form of pulmonary blastomycosis treated by surgical resection and cured.]—*Poumon*, 11, 4, pp. 285–295, 1955.

Following a summary of the available information on pulmonary blastomycoses, with special reference to those caused by *Candida* spp., the authors describe the successful treatment by lobectomy of a case due to *C. albicans* already reported from the medical viewpoint in a 20-year-old French girl resident at Algiers [2, No. 2295].

1607. Bowers (R.) & Whimster (I. W.). **Case for diagnosis ; nodular moniliasis of tongue.**—*Proc. roy. Soc. Med.*, 47, 8, pp. 653–654, 1954.

An aircraft-fitter aged 57 had a 15-month history of a swelling on the tongue. Several firm, raised lesions were seen on either side of the median furrow. They were painless, and the posterior ones were smooth and red, whilst those at the front retained their papillae and were covered with fur. Clinical examination revealed nothing of significance. Biopsy showed that in the partly keratinized layer of the epithelium a species of *Candida* was growing and invading living cells. A subsequent biopsy was cultured and yielded *C. albicans*. The nature of the lesions and the behaviour of the fungus, which is normally non-invasive in the mouth, were unusual.

1608. Berendes (J.) & Schallock (G.). **Die Bedeutung der Tonsillen als Herd für Pilzallergie und Ausgangspunkt für Pilzsepsis.** [The importance of the tonsils as a focus for fungal allergy and a starting-point for fungal sepsis.]—*Z. Laryng. Rhinol.*, 34, 3, pp. 174–179, 1 fig., 1955.

The importance of the tonsils as a focus of fungal infection, notably by *Candida albicans*, is discussed in the light of nine contributions to the literature on the increasing frequency of severe mycoses and their possible connexion with the bacteriostatic action of antibiotics.

1609. Craig (J. M.), Schiff (L. H.), & Boone (J. E.). **Chronic moniliasis associated with Addison's disease.**—*Amer. J. Dis. Child.*, 89, 6, pp. 669–684, 12 figs., 1955.

This is a detailed report from the Children's Medical Center and Harvard Medical School, Boston, of the clinical features and autopsies in three cases of chronic moniliasis (*Candida albicans*) associated with Addison's disease of the 'cycotoxic', atrophic type in young children (two boys and a girl). The fungus occurred in the oral mucous membranes, nail beds, and skin. In two of the patients symptoms suggestive of hypoparathyroidism were present. A sibling of one of the children suffered from clinical moniliasis and hypoparathyroidism, and a sibling of another was affected by the same conditions and Addison's disease. A study of 32 contributions to the relevant literature disclosed a further 12 cases of associated moniliasis and endocrine hypofunction.

1610. Pavlica (F.). **Candidova peritonitis.** [Monilial peritonitis.]—*Čas. Lék. čes.*, 94, 1–2, pp. 3–5, 1955. [Russian summary.]

A case of monilial peritonitis in a $2\frac{3}{4}$-year-old boy is described from Czechoslovakia. *Candida* spp. were not directly responsible for the original inflammation but became widespread after the destruction of the original intestinal flora by antibiotics. Other cases of the appearance of *Candida* spp. after treatments with antibiotics are cited [2, Nos. 1573–1580] and the need for great care in their use is emphasized.

1611. Perl (Gisella), Guttmacher (A. F.), & Jakubowicz (Helena). **Vaginal candidiasis; new method of diagnosis and treatment.**—*Obstet. Gynec., N.Y.*, 5, 5, pp. 640–648, 3 col. figs., 1955.

At the Mount Sinai Hospital, New York, the authors have obtained excellent results in the diagnosis of vaginal moniliasis (*Candida albicans*) by the use of Nickerson's medium, the active ingredient of which is a complex polybismuth sulphite. The fungus produces large, jet-black or dark brown, shiny, hemispherical colonies, with peripheral filamentation on continued incubation at 32° to 37° C. The necessary cultural procedures are indicated.

Of 450 patients attending the vulvo-vaginitis clinic over a period of 11 months, 140 (40 per cent.) were found to harbour the fungus in a pure state. Of 115 patients treated with gentersal cream (0·05 per cent. gentian violet and alkyl dimethyl benzylammonium chloride), 73 were cured (53 after one 10- to 14-day course, the rest after two to five) and the remainder were still undergoing therapy at the time of writing.

1612. Fox (J. L.). **Candicidin, a new antifungal antibiotic: first clinical report.**—*Antibiotic Med.*, 1, 6, pp. 349–350, 1955.

Full clinical details are given of a case of a white patient, 38 years of age, who had suffered from intermittent attacks of acute mycotic vaginitis, caused by *Candida albicans*, since October, 1947. Up to June, 1951, the acute episodes were only occasional, but after this date they became more frequent and severe. A subtotal hysterectomy was performed in March, 1951. The organism appeared to be resistant to all accepted forms of therapy. On 3rd July, 1951, therapy was started with candicidin, an antibiotic developed at the Institute of Microbiology, Rutgers University. Cultures at the end of the third and fourth weeks were negative and a final culture after seven weeks, i.e., three weeks after treatment had ceased, was also negative.

1613. Roth (W.). **Ein Beitrag zur Identifizierung von Candida albicans.** [A contribution to the identification of *Candida albicans*.]—*Schweiz. Z. allg. Path. Bakt.*, 18, 5, pp. 1001–1005, 1955.

In addition to maize meal agar and the special nutrient medium of Nickerson and Mankowski [2, No. 341], the writer uses blood agar, on which the chlamydospores essential for identification of *Candida albicans* develop after two days' incubation at 37° C. Fischer's method of intracutaneous injection into rabbits [1, No. 1719] also gives reliable results but is more onerous and expensive than the foregoing simple procedure.

1614. Seeliger (H.). **Ein neues Medium zur Pseudomycelbildung von Candida albicans.**—[A new medium for pseudo-mycelium production by *Candida albicans*.]—*Z. Hyg. InfektKr.*, 141, pp. 488–494, 3 figs., 1955.

From the Institute of Hygiene of the Friedrich Wilhelms University, Bonn, Germany, the author describes a new semi-liquid dextrose-tween 80 medium which promotes the pseudo-mycelial growth of certain budding fungi and has proved valuable in the rapid diagnosis of *Candida albicans* and related species. The stimulatory effect is counteracted by the addition of 0·1 per cent. cystein.

1615. Sarewitz (A. B.). **Treatment of genitourinary moniliasis with orally administered nystatin.**—*Ann. intern. Med.*, 42, 6, pp. 1187–1189, 1955.

From South Orange, New Jersey, are reported the case-histories of five women from 32 to 73 years of age suffering from genito-urinary moniliasis (*Candida albicans*). All were treated by oral administration of mycostatin (formerly known as nystatin) [2, Nos. 1069, 1352, and next entries] and

responded by a rapid clinical improvement. There was, however, a high incidence of relapse when medication was discontinued, though re-treatment was always successful.

1616. Robinson (R. C. V.). **Systemic moniliasis treated with mycostatin.**—*J. invest. Derm.*, 24, 4, p. 375, 1955.

A 64-year-old woman suffering from systemic moniliasis and oral and vaginal thrush (*Candida albicans*) at Baltimore, Maryland, was treated with mycostatin [see preceding and next entries], administered orally and by local application. The condition cleared completely in three months and the patient remained free of symptoms.

1617. Beckmann (A. J.) & Navarro (J. E.). **Pneumonia complicating oral thrush treated with mycostatin, a new antifungal antibiotic.**—*J. Pediat.*, 46, 5, pp. 587–591, 1 fig., 1955.

A three-week-old infant, admitted to Meadowbrook Hospital, Farmingdale, Long Island, New York, suffering from severe pharyngeal and oral thrush [*Candida albicans*] and pneumonia, which failed to respond to antibiotic therapy, was treated with mycostatin [see preceding and next entries] with rapid amelioration of all symptoms and no adverse side effects.

1618. Sloane (M. B.). **A new antifungal antibiotic, mycostatin (nystatin), for the treatment of moniliasis : a preliminary report.**—*J. invest. Derm.*, 24, 6, pp. 569–571, 1955.

Of eight patients with *Candida albicans* infections of various types treated with mycostatin [see preceding entries] at the Columbia University College of Physicians and Surgeons, Missouri, the symptoms of six cleared completely, while the other two, one a case of vaginitis and the other of paronychia, needed continuous therapy to suppress the symptoms. Oral and vaginal thrush and pruritus ani were among the conditions yielding to this mode of therapy.

1619. Scherr (G. H.). **The effect of cortisone, somatotrophic hormone, and piromen on experimental moniliasis in Mice.**—*Mycologia*, 47, 3, pp. 305–310, 1955.

In further studies at the Creighton University School of Medicine, Omaha, Nebraska [2, No. 1073], piromen injected intraperitoneally into male and female Webster strain white mice experimentally infected with moniliasis (*Candida albicans*) at a dosage of 0·1γ per mouse every 48 hours markedly reduced the severity of infection. Cortisone largely reversed this effect for males. The combination of piromen and STH reduced the severity of infection still more in females, but this apparently synergistic effect was diminished when cortisone was introduced into the mixture. The low toxicity of piromen reported clinically and the efficacy demonstrated in the current investigations indicate that a clinical evaluation of this regimen of therapy for systemic moniliasis would be worth while.

1620. Stenderup (A.). **Effect of diamidines on Candida albicans in vitro.**—*Acta path. microbiol. scand.*, 36, 4, pp. 361–364, 1955.

At the Institute of General Pathology, University of Aarhus, Denmark, the growth of 10 strains of *Candida albicans* on Sabouraud's medium at 37° C. was inhibited or totally suppressed by low concentrations of pentamidine or stilbamidine, the former being the more effective. The activity of the compound decreased with the pH. Pentamidine produces no appreciable toxic effects on human beings at the customary dosage of 200 mg. per diem and is considered to merit clinical trials in the therapy of severe cases of moniliasis.

1621. Van Eeckhoutte (P.). **Schlimmelinfecties van de tractus digestivus, tijdens antibiotische therapie.** [Fungal infections of the digestive tract during antibiotic therapy.]—*Belg. Tijdschr. Geneesk.*, 10, 13, pp. 652–653, 1954.

A case is reported of a 35-year-old woman at Brugge, Belgium, who developed moniliasis (*Monilia* [*Candida*] *albicans*) of the digestive tract during a course of therapy with chloramphenicol for the relief of pyelocystitis. The local symptoms, involving the tongue, pharynx, and anus, disappeared after treatment with gentian violet and discontinuance of the antibiotic.

1622. Wallace (H. J.). **Cutaneous moniliasis.**—*Practitioner*, 174, 1041, pp. 343–345, 1955.

Essential information is summarized from St. Thomas's Hospital, London, on the symptomatology, differential diagnosis, and treatment, preferably by local applications of 0·5 to 1 per cent. aqueous gentian violet, of monilial intertrigo, paronychia and onychia, and cutaneous thrush, all incited by *Monilia* [*Candida*] *albicans*.

1623. Moore (M.). **Onychomycosis caused by species of three separate genera. Report of a case with a study of a species of Hyalopus (Cephalosporium).**—*J. invest. Derm.*, 24, 5, pp. 489–498, 5 figs., 1955.

From the School of Medicine, Washington University, St. Louis, Missouri, a description is given of lesions of the finger-nails in a 14-year-old girl. On the initial investigation two organisms, *Candida parakrusei* and a species of *Hyalopus* (*Cephalosporium*) were isolated and could be demonstrated microscopically in scrapings. Cultures made two years later, however, revealed *Trichophyton rubrum* and *Candida parakrusei* only. Following a detailed description of the *Hyalopus* sp. and a brief survey of the literature on the genus, the author refers his fungus to *H. onychophilus* (Vuillemin) Aschieri.

1624. Adriano (S. M.) & Schwarz (J.). **Experimental moniliasis in Mice.**—*Amer. J. Path.*, 31, 5, pp. 859–873, 8 figs., 1955.

The intravenous inoculation experiments herein jointly reported from the Jewish and General Hospitals and the College of Medicine, Cincinnati, Ohio, were performed with *Candida albicans* on four groups of male white mice. In (I), (II), and (III) 0·1 ml. of a suspension of the 'Fuentes' strain [2, No. 359] were used, containing, respectively, 100,000, 1,000,000, and 1,000 organisms, and in (IV) one of formalin-killed and washed material of the same species with 1,000,000. All the 80 animals in group (I) succumbed within 13 days (two in 18 hours), the average survival period being 3½ days. Four of the 11 in group (II) died within 20 hours, and from the nature of the lesions in the remainder it was assumed that all would have died within a day had they not been killed earlier. No fatalities occurred in groups (III) or (IV).

Symptoms of the disseminated disease thus induced comprised interstitial inflammation, abscesses, and granulomata in the heart, kidneys, brain, and spleen. Myocarditis appeared to be the earlier manifestation of infection and was probably the immediate cause of death in most of the animals in groups (I) and (II). Interstitial nephritis was of constant occurrence, medullary localization prominent among survivors for longer periods, and encephalitis a late symptom, while the formation of granulomata seemed to connote chronicity or indolence.

1625. Underwood (P. C.). **Detection of crop mycosis (moniliasis) in Chickens and Turkey poults with a panendoscope.**—*J. Amer. vet. med. Ass.*, 127, 942, pp. 229–231, 4 figs., 1955.

From the Veterinary Medical Branch, Food and Drug Administration,

Beltsville, Maryland, the author describes the mode of application of a McCarthy's foroblique panendoscope for the diagnosis of crop moniliasis (*Candida albicans*) in chickens and turkey poults [2, No. 1347]. The instrument, which can be passed easily through the mouth and into the crops of chickens at four and of turkey poults at three weeks, is equipped with a viewing lens and an independent light source, the cannula portion being oval and measuring 10 by $\frac{5}{16}$ in. In practice, this method of examination has proved to be 75 to 90 per cent. accurate in cases of experimental infection and should be of value in the early and positive diagnosis of the disease.

1626. Di Menna (Margaret E.). **A search for pathogenic species of yeasts in New Zealand soils.**—*J. gen. Microbiol.*, 12, 1, pp. 54–62, 1955.

When 100 soil samples from various parts of the South Island of New Zealand were cultured on an acid medium at 37° C. at the Department of Microbiology, University of Otago, Dunedin, stockyard soils yielded the most yeasts, chiefly strains of *Rhodotorula mucilaginosa* and *Candida parapsilosis*. *C. albicans* was isolated once each from an urban and a stockyard soil. Of eight samples held at room temperature, a peat soil yielded a pure culture of *C. brumptii*, while species of *Cryptococcus* and *Trichosporon* predominated in the other seven.

1627. Baker (R. D.) & Wynn (J. O.). **Pulmonary mucormycosis.**—*Amer. J. Path.*, 31, 3, pp. 599–600, 1955.

A feature common to five fatal cases of pulmonary mucormycosis at the Veterans Administration Hospital, Durham, North Carolina, was the broad, branching, non-septate hyphae found in the lesions. The fungus penetrated the artery walls, causing thrombosis, accompanied in one case by massive infarction of the lung and in others by widespread infection of the bronchial tree and alveoli, resulting in pneumonia. Involvement of the veins, lymphatics, hilar structures, and diaphragm was also observed. In three cases the lesions were acute, without organization; in two subacute, with minimal organization; and in one chronic, with giant cell and fibroblastic response. The duration of clinical symptoms in the first three ranged from five to ten, in the fourth 30, and in the fifth 90 days. Two of the patients were three years old and the others in the fifties; they were from Arizona, North Carolina (two), South Carolina, and Texas. The available evidence suggests the implication of *Rhizopus* in this form of mucormycosis. Diabetes was a predisposing condition [cf. next entry] in three of the cases and acute leucaemia, treated with cortisone, in one.

1628. Bauer (H.), Flanagan (J. F.), & Sheldon (W. H.). **Experimental cerebral mucormycosis in diabetic Rabbits.**—*Amer. J. Path.*, 31, 3, p. 600, 1955.

At the Emory University School of Medicine, Georgia, nine rabbits suffering from alloxan diabetes were inoculated with a saline spore suspension of *Rhizopus oryzae*, isolated at necropsy from a patient with cerebral mucormycosis [cf. preceding entry] involving the orbital tissues, meninges, brain, and one ethnoid sinus. Extensive invasion of the nasal mucosa, blood vessels, and bone, with widespread necrosis and acute inflammation was encountered in seven of the animals 18 to 71 hours after inoculation; four had developed meningo-encephalitis resembling cerebral mucormycosis in man, and in two renal lesions were present. In five out of nine normal controls inoculated at the same time a few minute ulcerations of the nasal mucosa with acute inflammation and a few degenerating hyphae were detected, but there were no cerebral, pulmonary, or renal lesions.

Three other groups of diabetic and normal rabbits were inoculated with *R. arrhizus*, *Absidia ramosa* [1, No. 215], and *A. corymbifera* [2, No. 839], respectively. All three species induced nasal lesions in the diabetic groups, accompanied by meningo-encephalitis in two of the animals inoculated with *R. arrhizus* and in one each of those inoculated with *A. ramosa* and *A. corymbifera*. In addition, renal lesions developed in one of the rabbits inoculated with *R. arrhizus*. As in the case of *R. oryzae*, the normal controls inoculated with the three foregoing species showed only nasal involvement. Fungus aspiration pneumonia was a frequent finding in all the diabetic animals.

1629. Dowding (Eleanor S.). **Endogone in Canadian Rodents.**—*Mycologia*, 47, 1, pp. 51–57, 1 pl., 1 map, 1955.

In July and August, 1953, masses of *Endogone* spores appearing as black grains to the naked eye were found in the stomachs of Alberta rodents from areas extending from Edmonton to the United States border and from the Rocky Mountains to Saskatchewan. *E. fasciculata* was found in deer-mice, rock-rabbits, a grasshopper-mouse, and a vole; *E. pulvinata* was found in a Rocky Mountain jumping mouse.

The chlamydospores of *E. fasciculata* were spherical or slightly elongate, 35 to 100 μ in diameter. The spore wall was 10 μ thick and consisted of a thin exospore and a thick, amber-coloured, striated endospore. The zygospores were irregularly elliptic, potato-shaped, and measured about 84 by 15 μ.

The chlamydospores of *E. pulvinata* averaged 50 by 60 μ, with walls 2 to 4 μ thick consisting of a dark, exfoliating exospore and a clear endospore. All the spores were separated from the hyphae by septa.

In September, 1953, spores of *E. fasciculata* were obtained from straw gathered in a field at Edmonton; the fungus is evidently common in Alberta.

1630. Knoth (W.), Krause (S.), & Knoll (K. H.). **Tumorförmige Pilzkrankung durch eine anaskosporogene Hefe.** [A tumour-like fungus disease caused by an anascosporogenous yeast.]—*Dermatologica, Basel*, 111, 6, pp. 357–366, 7 figs., 1955. [English and French summaries.]

From the Academy for Medical Research, Justus-Liebig Institute, Giessen, Germany, the authors report the development on the left cheek of a two-year-old boy of a tumorous swelling, the size of a small apple, which was attributed on the basis of histological, mycological, and animal experiment studies to *Rhodotorula rubra*.

1631. Seibold (H. R.). **Mycetoma in a Dog.**—*J. Amer. vet. med. Ass.*, 127, 944, pp. 444–445, 2 figs., 1955.

The histopathological examination at the Alabama Polytechnic Institute, of a tumour-like lesion on the left front foot of a three-year-old greyhound revealed a brown-pigmented fungus which is tentatively referred to *Allescheria boydii*.

1632. Blank (F.) & Stuart (E. A.). **Monosporium apiospermum Sacc., 1911, associated with otomycosis.**—*Canad. med. Ass. J.*, 72, 8, p. 601, 1955.

Monosporium apiospermum, the conidial form of *Allescheria boydii*, was isolated in 1954 from debris in the ear canals of a 51-year-old male patient at the Royal Victoria Hospital, Montreal. There was no history of previous ear trouble. Painting with cresatin at two- to three-day intervals for a fortnight resulted in an apparently complete cure.

1633. Pautler (E. E.), Roberts (R. W.), & Beamer (P. R.). **Mycotic infection of the eye. Monosporium apiospermum associated with corneal ulcer.**—*Arch. Ophthal., Chicago*, 53, 3, pp. 385–389, 3 figs., 1955.

The clinical, microbiological, and pathological findings in a 39-year-old

farmer of North Carolina suffering from corneal ulcer, hypopyon, and iridocyclitis are fully reported and discussed. *Allescheria boydii* was cultured from the exudate and morphologically characteristic elements (septate hyphae and ovoid conidia) were demonstrated in tissue sections of the enucleated eye. This is believed to be the first report of the fungus as an agent of intra-ocular infection, which could not be controlled by sulphonamide drugs or antibiotics.

1634. Rodríguez M. (J. D.). **Sobre tres casos de micetoma podal. Con especial referencia de uno producido por Allescheria boydii, 1921.** [Concerning three cases of mycetoma pedis, with special reference to one caused by *Allescheria boydii*, 1921.]—*Rev. ecuator. Hig. Med. trop.*, 12, 1, pp. 119–129, 9 figs., 1955.

The author reviews the classical concepts of mycetoma, paramycetoma, and pseudomycetoma, and gives the results of a detailed study of three cases of mycetoma pedis in Ecuador. The first, in a 40-year-old woman, was caused by *Allescheria boydii* [2, No. 336], perithecia being observed after 18 days on maize meal agar. The second, in a 50-year-old farm-worker, was probably caused by *Nocardia asteroides* [1, No. 2220], while the third, in a 35-year-old woman, yielded in culture a delicate, Gram-positive mycelium, not yet identified.

1635. Peralta Bergna (H. D.) & Gallo (G. G.). **Comunicación sobre el tratamiento de la rhinosporidiosis.** [Communication concerning the treatment of rhinosporidiosis.]—*Rev. vet. milit., B. Aires*, 1, 2, pp. 75, 77–81, 1953.

In this study at the Central Veterinary Laboratory, Buenos Aires, of seven cases of *Rhinosporidium seeberi* affecting the nasal passages in horses [2, No. 842], an autopsy on two revealed that the organism was confined to this site. Experiments in the treatment of the remaining animals demonstrated the efficacy of two applications of formalin in clearing up the neoformations. Any resulting rhinitis was dispersed with gomenol compound applied intramuscularly. Those apparently formalin-resistant responded to infiltration at the base. The formalin treatment, combined with injections and oral dosage of potassium iodide, appeared to prevent any relapse. The foregoing measures resulted in three complete and two quasi-complete cures, with an average duration of three to four months.

1636. Van Breuseghem (R.), Thys (A.), & Henrot (L.). **Troisième cas congolais de rhinosporidiose. Considérations nouvelles sur la nature des sphérules.** [Third Congolese case of rhinosporidiosis. New considerations on the nature of the spherules.]—*Ann. Soc. belge Méd. trop.*, 35, 2, pp. 225–228, 3 figs., 1955.

The third case of rhinosporidiosis (*Rhinosporidium seeberi*), involving the upper palpebral conjunctiva of the right eye in a 17-year-old native girl at Albertville, is reported from the Belgian Congo.

1637. Alperovitch (A.). **Thérapeutique antifongique.** [Anti-fungal therapeutics].—*Gaz. méd. Fr.*, 61, 10, pp. 707–708, 1954.

Brief details are given of 20 cases of different skin infections (caused by *Penicillium* spp., *Trichophyton* spp., *Aspergillus niger*, *Streptomyces albus*, *Microsporum* [*Malassezia*] *furfur*, and yeasts [unspecified]) treated at l'Hôpital St. Louis, Paris, with an ointment containing diethylamine salicylate, diethylamine undecylenate, amolysol, and tyrothricine, rubbed in twice a day. Of the 20 cases, 25 per cent. were cured, and 60 per cent. improved, in a fortnight, while in 90 per cent. of the cases the condition cleared up in one month; only 10 per cent. of the cases treated failed to improve.

1638. Taranyuk (P. S.). Применение аллергена бластомицина для диагностики и лечения больных эпизоотическим лимфангоитом лошадей. [Application of blastomycin allergen for diagnosis and treatment of horses suffering from epizootic lymphangitis.]—Ветеринария, Москва [*Veterinariya, Moscow*], 30, 5, pp. 12–16, 1953.

At the Irkutsk Scientific Research Veterinary Experiment Station, U.S.S.R., maximum allergic reaction was obtained in horses 48 to 72 hours after applying subcutaneous injections of blastomycin allergen (0·4 ml.). A more extensive use of blastomycin in veterinary practice is recommended. It remains active for three years, facilitates the early diagnosis of *Histoplasma farciminosum* infection when clearly defined, typical clinical symptoms are absent, and can be used as a specific preparation for treating the infected horses. It is harmless to healthy horses and causes no clinical, allergic reaction.

1639. Noskov (A. I.) & Koroleva (Mme V. P.). Аллергический метод диагностики эпизоотического лимфангоита Лошадей [A skin test for *Histoplasma farciminosum* infection in Horses.]—*J. agric. Sci., Moscow, Vet. Ser.*, 30, 8, pp. 10–14, 1953.

Histoplasmin, easily applied and readily inducing a reaction, is recommended by the Ministry of Agriculture and Supply, U.S.S.R., for diagnosing *Histoplasma farciminosum* infection in horses. Latent infection can also be detected by this means.

1640. Segretain (G.), Mariat (F.), & Drouhet (E.). **Sur Cladosporium trichoides isolé d'une mycose cérébrale.** [On *Cladosporium trichoides* isolated from a cerebral mycosis.]—*Ann. Inst. Pasteur*, 89, 4, pp. 465–470, 3 figs., 1955.

A full description is given of the cultural characters of a strain of *Cladosporium trichoides* [2, Nos. 27, 1237] isolated from a tumour on the brain of a 30-year-old female patient at the Hôpital Pasteur, Paris, with special reference to the formation of 'vrilles' on Czapek's medium. The intracranial inoculation of mice and a rabbit with a saline spore suspension resulted in the development of blackish lesions in the brain, from which the fungus was reisolated.

1641. Mescon (H.) & Moretti (G.). **The treatment of cutaneous mycoses.**—*Med. clin. N. Amer.*, Boston No., *1954*, pp. 1301–1308, 1954.

After discussing the pathologic physiology of the fungi [unspecified] causing human dermatophytosis under the headings of excessive moisture, growth in keratin, therapy, specific regional problems (tinea of the scalp, kerion, tinea of the nails, trichophytid reaction, fungal infection of the glabrous skin), and contagiousness, the authors conclude that the most effective therapy is that aimed at removing or reducing sweat by washing, promoting evaporation, employing fungistatic medications, treating or relieving psychogenic factors which promote increased sweating, and removing keratin.

1642. Martínez Navarro Zanón (A.). **A propósito del tratamiento de las tiñas 'primum non nocere.'** [The maxim '*primum non nocere*' with reference to the treatment of tineas]—*Act. dermo-sifilogr., Madr.*, 46, 6, pp. 439–444, 1955.

This is a plea, followed by a discussion, for the use of conservative methods in the therapy of [unspecified] tineas, avoiding as far as possible the application of X-rays or thallium salts to secure total depilation, since these treatments often cause serious and permanent disfigurement without achieving their object.

1643. Granits (J.). **Pilzkulturen aus Reihenuntersuchungen von gesunder Epidermis.** [Fungus cultures from serial examinations of normal epidermis.]—*Derm. Wschr.*, 130, 51, pp. 1352–1356, 1954.

Of 2,444 cultures from scrapings of normal epidermis examined at the University Clinic for Skin Diseases, Vienna, 907 from 118 subjects were positive for fungi, including 374 representatives of various species of *Penicillium*, 365 *Alternaria*, 128 *Aspergillus* (excluding *A. niger*), 35 *Mucor*, and three *Candida albicans*.

1644. Getz (Kaare), Skillern (S.), & Ulrich (J.). **Studies on mosaic fungus.**—*J. invest. Derm.*, 25, 1, pp. 29–32, 2 figs., 1955.

The results of studies at the Mayo Clinic, Rochester, Minnesota, indicate that the 'mosaic fungus' [2, No. 133] found in skin scrapings treated with 10 per cent. potassium hydroxide before microscopic examination are artefacts in no way connected with the presence of fungi, the following reasons being adduced. They do not show the staining properties of fungi; they were not reproducible in experimental inoculations of guinea-pigs with *Trichophyton mentagrophytes*; cultures were negative in all cases where 'mosaic fungus' alone was found in skin scrapings; 'mosaic fungus' was found in 90 per cent. of specimens taken from the thick skin on the sole of the feet of normal persons.

1645. Paldrok (H.). **Influence of certain environmental factors on the growth and sporulation of the dermatophytes.**—*Rapp. Commun. VIII^e Congr. int. Bot., 1954*, Sect. 18–20, p. 126, 1954.

The growth rate of the dermatophytes is highest at about 30° C., but the most favourable temperature for conidial development is somewhat lower. The range for conidial development is wider below than above the optimum for sporulation. The number of conidia increases slowly as the temperature rises above zero, but after the maximum is reached it declines rapidly. At favourable temperatures the shape of the macroconidia is normal, but at others it is less differentiated or retrogresses, and cultures may be deprived of aerial mycelium, in which case the colonies become glabrous and the only structures formed are chlamydospores. The retrogressive forms of macroconidia have served as a basis for the erection of new but non-valid genera and species.

1646. Ehrmann (G.) & Wiedmann (A.). **Näßmittel bei Hautpilzerkrankungen.** [Wetting agents in dermatomycoses].—*Derm. Wschr.*, 130, 50, pp. 1327–1334, 2 figs., 1955.

Particulars are given of laboratory experiments and clinical tests at the University Clinic for Skin Diseases, Vienna, with alkaryl sulphonate [cf. 2, No. 1373], a wetting agent manufactured by the Austrian Unilever Co., the fungicidal activity of which was shown to be equal to that of benzoic and undecylenic acids. Of eight patients with moniliasis (*Candida albicans*), six responded very favourably to washing with a lukewarm or hot 0·5 per cent. solution of the compound with a fairly large admixture of soda for 15 to 20 minutes daily or at two-day intervals, the corresponding figures for 24 with hyphomycetous infections (including *Epidermophyton* and *Trichophyton* spp.) and for nine harbouring *Alternaria*, *Aspergillus*, and *Penicillium* spp. being 17 and 3, respectively.

1647. Wilde (H.). **Über die Verbreitung der Pilzinfektionen im Bergbau und über Maßnahmen zu ihrer Bekämpfung.** [On the distribution of mycoses in the mining industry and on measures for their control.]—*Hautarzt*, 6, 3, pp. 116–118, 1955.

The preliminary results of an inquiry which has been proceeding since 1952

into the distribution of [unspecified] dermatomycoses among over 10,000 miners in seven pits in the Gelsenkirchen district of Germany [cf. 1, No. 507; 2, No. 1372] are described and tabulated. On an average 70 per cent. of the personnel showed symptoms of fungal infection, the incidence in the individual pits ranging from 56 to 84·5 per cent. Myxal [2, No. 1374] and novex [2, No. 1371] were equally effective in the therapy of the complaint.

1648. Schwarz (H. G.). **Fettsäuren der mittleren Kettenlänge als therapeutisches Mittel gegen Dermatomykose.** [Fatty acids of medium chain length as therapeutic agents against dermatomycosis.]—*Z. Haut- u. Geschlechtskr.*, 18, 10, pp. 299–300, 1954.

Nine contributions to the literature on the use of fatty acids in the therapy of [unspecified] dermatomycoses are mentioned in this brief review of the subject.

1649. Alkiewicz (J.), Majewski (Cz.), & Janiak (E[lzbieta]). **Biochemical investigations on the fungistatic effect of Pseudomonas aeruginosa.**—*Bull. Soc. Sci. Poznan*, Ser. C, *1955*, 5, pp. 11–19, 1955. [Russian summary.]

Investigations on the fungistatic effect of the antibiotic metabolites of *Pseudomonas aeruginosa* at Poznan, Poland, showed that pyocyanine (biological), pyocyanine sulphate, and the sodium salt pyocyanine inhibit *in vitro* the growth of certain fungi of the *Trichophyton* and *Microsporum* group. By using activated carbon and an acetone extract a new fungistatic agent PX, belonging neither to pyocyanine nor any of the 'Pyo-compounds', was isolated but has not yet been described. The addition of cobalt sulphate increased its fungistatic effect.

1650. Blank (F.). **Dermatophytes of animal origin transmissible to Man.**—*Amer. J. med. Sci.*, 229, 3, pp. 302–316, 1955.

This detailed review from McGill University, Montreal, Canada, of the literature on the transmission of dermatophytes of animal origin to man is supplemented by a very extensive bibliography.

1651. Kral (F.). **Classification, symptomatology, and recent treatment of animal dermatomycoses (ringworm).**—*J. Amer. vet. med. Ass.*, 127, 944, pp. 395–402, 11 figs., 1955.

Up-to-date information is presented on animal dermatomycoses under the headings of classification, clinical symptoms of *Microsporum* and *Trichophyton* infections, course and prognosis, and treatment.

1652. Barlow (A. J. E.) & Chattaway (F. W.). **The attack of chemically modified keratin by certain dermatophytes.**—*J. invest. Derm.*, 24, 1, pp. 65–74, 3 pl., 1955.

Investigations carried out at Huddersfield Royal Infirmary and the University of Leeds into the fungal attack of untreated and chemically modified normal human hair *in vitro* have shown that, while it is not possible to obtain the growth forms observed *in vivo* or to induce fluorescence, the type of infection can be extensively modified. *Microsporum canis*, *M. audouini*, *Trichophyton rubrum*, and *Epidermophyton floccosum* were found to damage normal hair in decreasing order of intensity and in various ways [1, No. 1764]. When the hairs were treated with thioglycollic acid or metabisulphite to break the disulphide bonds in the keratin molecules, or by lithium bromide to break

the hydrogen bonds, all four fungi acted more rapidly and extensively than on normal hairs. On the other hand, when hairs were treated with mercuric acetate to cross-link amino groups, or with 1:2:3:4-diepoxybutane to cross-link carboxyl groups, the extent and velocity of attack was uniformly reduced. The formation of a trimethylene bridge in the keratin molecule by treatment with 1,3-dibromopropane rendered the hairs completely resistant to all the fungi. These results suggest that the restriction of the parasitism of *M. audouini* to human hair, while *M. canis* is able also to attack that of other mammals, may be associated with a difference in cross-linkages in the keratin of human and animal hairs. It is also possible that the use of keratolytics to soften the nail plate in onychomycosis actually enhances the susceptibility of the nail, whereas chemicals inducing cross-linkages might serve to increase resistance.

1653. Whittle (C. H.). **A survey of fungous infection in the Cambridge area 1948–1955.**—*Brit. J. Derm.*, 68, 1, pp. 1–10, 2 maps, 1956.

A survey of fungous infection of the Cambridge area, carried on from the United Cambridge Hospitals, falls into two periods. The first, 1948–53, when fewer staff were available and a smaller rural area tapped, was remarkable for its compact pockets of epidemic infection with truly human parasites. Two outbreaks were due to the engonic form of *Microsporum audouini* and one to the dysgonic form; one was attributable to *M. gypseum*, one to an unspecified *Microsporum* species, and one to *Trichophyton sulphureum*. In the second period 1954–5, there were no epidemics and *M. audouini* and *T. sulphureum* were not encountered. Infections recurred sporadically and were predominantly of animal origin as would be expected when the enlarged rural area served is taken into account. Most of the 24 cases of *M. canis* ringworm observed probably originated from infected cats. Of 58 cases of *T. mentagrophytes* infection and 43 of *T. discoides*, 47 and 39, respectively, occurred in the second part of the period. Other records were 18 cases of *T. mentagrophytes* var. *interdigitale*, 27 of *T. rubrum*, one of *T. violaceum*, three of *Epidermophyton floccosum* and several of *Malassezia furfur*.

1654. Rook (A.). **Animal ringworm. Trichophyton discoides and mentagrophytes in the Cambridge area.**—*Brit. J. Derm.*, 68, 1, pp. 11–15, 1956.

From Addenbrooke's Hospital, Cambridge, a detailed analysis is made of 77 cases of animal ringworm in man from the Cambridge area, 40 of which were attributable to *Trichophyton discoides* and 37 to *T. mentagrophytes* [see preceding entry]. Of the *T. discoides* infections 80 per cent. took place during the months October to March whereas only 51 per cent. of *T. mentagrophytes* infections began during the winter. *T. discoides* infections showed their highest incidence during the first 20 years of working life, but nearly 50 per cent. of *T. mentagrophytes* infections occurred in children under 15. Males were always more commonly affected than females. Both infections involved predominantly the exposed sites. *T. discoides* infections were usually contracted from cattle, but with *T. mentagrophytes* various animal hosts were suspected though the source was often difficult to trace. There were no significant and constant clinical differences between the two infections.

1655. Mortimer (P. H.). **Man, Animals and ringworm.**—*Vet. Rec.*, 67, 36, p. 670–672, 1955.

This is a useful survey, based on experience at the Department of Veterinary Clinical Studies, University of Cambridge, and a perusal of 16 contributions to

the literature on the subject, of information on the forms of tinea (*Trichophyton* and *Microsporum* spp.) common to man and domestic animals.

1656. Lapidus (Myriam) & Lapidus (S.). **Les teignes trichophytiques de l'Adulte. À propos de 156 cas de trichophyties découverts à l'examen systématique de 4,760 Adultes au Maroc.** [The trichophytic ringworms of the Adult. Of 156 cases of trichophytic infection found upon systematic examination of 4,760 Adults in Morocco.]—*Maroc. méd.*, 33, 349, pp. 631–634, 1954.

The results are given of a survey for the presence of ringworm (*Trichophyton* spp.) carried out by the writers on 4,760 Moroccan Jews of both sexes over 16 years of age from all parts of the country. Of those persons examined, 156 (3·21 per cent.) were infected, 7 (0·024) men and 149 (7·76) women. Adult women serve as a reservoir of infection for children, in whom the complaint cannot be controlled unless it is first detected and combated in women. Susceptibility would appear to depend on hormone balance, which in turn is associated with age and sex.

1657. Nuñez Andrade (R.). **Tratamiento moderno de la dermatofitosis.** [Modern therapy of dermatophytosis.]—*Medicina, Méx.*, 34, 708, pp. 425–435, 1954. [Received 1955.]

The author discusses the incidence of 16 common dermatophytes occurring in Mexico, their symptoms, synonymy, and treatment. A list of 55 therapeutants in current use is given and a bibliography of 30 papers is appended.

1658. Navarro Martín (A.). **Algunos datos sobre las tiñas de la región de Santander y terapeutica.** [Some data relative to tineas in the region of Santander and therapy.]—*Act. dermo-sifilogr., Madr.*, 46, 6, pp. 463–465, 1955.

The 383 cases of tinea covered by this survey of the region of Santander, Spain, comprised 110 of favus [*Trichophyton schoenleini*], 150 of trichophytosis caused by *T. acuminatum* [*T. sabouraudi*], *T. violaceum*, *T. cerebriforme* [*T. flavum*], *T.* sp. with megaspores, *T. rosaceum*, and *T. faviforme* [*T. verrucosum*] in order of frequency, and 123 of microsporosis, nearly all due to *Microsporum canis*, *M. audouini* being very seldom encountered.

Of the 52 cases of favus depilated by irradiation, 37 were cured, while thallium salts were effective in only 19 out of 53. The latter method combined with topical treatment, was successful in 102 out of 120 cases of trichophytosis, and 24 out of 38 were cured by X-ray depilation. A single application of thallium salts was effectual in 96 out of 106 cases of microsporosis, eight out of 10 responded favourably to irradiation, and five out of seven recovered after two to three months of local therapy.

1659. Conejo Mir (J.), Rodríguez Moreno (T.), & Conde Muñoz (J. M.). **Contribución al estudio de la etiología y distribución geográfica de las tiñas en la provincia de Sevilla.** [Contribution to the study of the etiology and geographical distribution of tineas in the province of Seville.]—*Act. dermo-sifilogr., Madr.*, 46, 6, pp. 454–461, 2 maps, 1955.

In 93 out of 508 cases of tinea investigated in the province of Seville, Spain, the responsible dermatophytes were identified by culture on Sabouraud's media as follows: *Trichophyton violaceum* 35 (38·9 per cent.), *T. tonsurans* 12 (12·2), *T. sabouraudi acuminatum* [*T. sabouraudi*] 5 (5·3), *T. mentagrophytes* 6 (6·3), *T. schoenleini* 7 (7·5), *Microsporum audouini* 14 (13·9), and *M. lanosum* [*M. canis*] 3 (3·2). Boys were more commonly affected than girls (310 or 61·2

as compared with 198 (38·8), and the maximum frequency (109 cases) occurred between the ages of seven and eight. Of the total number of patients, 291 were resident in the city of Seville.

1660. Navarro Martín (A.). **Sobre el tratamiento de la tricoficía profunda (kerion celsi).** [On the treatment of deep trichophytosis (kerion celsi).]—*Act. dermo-sifilogr., Madr.*, 46, 6, pp. 473–475, 1955.

Among 93 cases of kerion celsi (*Trichophyton* spp.) treated by the author at Valdecilla, Santander, Spain, only 14 were females, 12 of them under 14 years old. Of the various remedies tested, antibiotics, especially penicillin, have proved the most effective.

1661. De Oliveira (H.). **A endemia portuguesa de tinha; suas características etiológicas.** [The Portuguese endemia of tinea: its etiological characteristics.] —*Act. dermo-sifilogr., Madr.*, 45, 8, pp. 479–491, 2 graphs, 2 maps, 1954.

Trichophyton violaceum predominated as an agent of tinea in the 4,000 cases investigated in Portugal [1, Nos. 595, 2335, and next entries] during the last five years, representing 48·6 per cent. in the northern zone, 64·6 in the central, 57·3 in Estremadura, and 67·5 in Algarve; the corresponding figures for *T. tonsurans* were 9·8, 10, 15·7, and 25, respectively; for *Microsporum felinum* [*M. canis*] 8·4, 14·5, 16·7, and 0·9; and for *A.* [*T.*] *schoenleini* 32·8, 9, 6·4, and 3·2. The very few strains of *M. audouini* encountered were clearly of exotic origin. Other species occasionally isolated were *T. rubrum*, *T. granulosum*, and *T. cerebriforme* [*T. flavum*]. *T. glabrum*, rare in the north and central zones, assumed significant proportions in Estremadura and Algarve, reflecting the proximity of North Africa, where the species is prevalent.

1662. Esteves (J.) & Antunes (Maria M.). **Acêrca do tratamento local das tinhas tonsurantes do couro cabeludo.** [Concerning the local treatment of tinea tonsurans of the scalp.]—*Trab. Soc. portug. Derm.*, 12, 1, pp. 11–28, 1954. [English and French summaries.]

Of 111 children aged from one to 12 years who were treated at the Curry Cabral Hospital, Lisbon, with 5 per cent. salicylanilide ointment for the elimination of tinea capitis [see preceding and next entries] caused by *Trichophyton violaceum*, *T. glabrum*, *T. acuminatum* [*T. sabouraudi*], *T. crateriforme* [*T. tonsurans*], *T. rubrum*, and *Microsporum felineum* [*M. canis*], 72 (64·9 per cent.) were cured in an average period of four months. In general, *T. violaceum* appeared to be more refractory to this mode of therapy than the other species. Inflammatory phenomena occurred in 65 patients, usually in the form of simple folliculitis, kerion being exceptional; they were not essential for the success of the treatment.

1663. Sampaio (N.) & Rego (S.). **Brigadas moveis na luta contra a tinha.** [Mobile brigades in the campaign against tinea.]—*Trab. Soc. portug. Derm.*, 12, 4, pp. 225–231, 1 map, 1954. [French and English summaries.]

The authors report the results of the inception in 1952 of a campaign against tinea in Portugal [see next entries] by a mobile brigade, organized by the Director-General of Public Health and consisting of a dermatologist, two nurses, a welfare-worker, laboratory equipment, medicaments, and X-ray apparatus. The inspection of 4,400 children living under very insanitary conditions in a fishing centre revealed 255 cases of endothrix [*Trichophyton* spp.], 35 of microsporosis [*Microsporum* spp.], and 28 of favus [*T. schoenleini*]. All were successfully treated in their homes at a much lower cost than is required for hospitalization.

1664. Esteves (J.), Fonseca (A. da), & Antunes (Maria M.). **Aspectos epidemiológicos da tinha em Portugal. Distribuïção dos casos em função da idade, sexo e tipo de parasitismo.** [Epidemiological aspects of tinea in Portugal. Distribution of cases in relation to age, sex, and type of parasitism.]—*Portug. méd.*, 39, 2, pp. 65–71, 5 graphs, 1955.

The majority of the 4,273 cases of tinea comprised in this epidemiological survey of Portugal [see preceding entries] fell within the seven-to-12-year age group (1,967), the corresponding figures for four to six, up to three, 13 to 20, and over 20 years being 1,220, 570, 434, and 82, respectively. Trichophytoses [*Triphophyton* spp.] predominated among girls of school age, whereas younger boys were more frequently affected by microsporosis [*Microsporum* spp.]. Trichophytosis was much more prevalent throughout the country than the other types of tinea; favus [*T. schoenleini*] was largely confined to the north.

1665. Fegeler (F.). **Mykosen durch Mikrosporon gypseum.** [Mycoses due to *Microsporum gypseum.*]—*Hautarzt*, 6, 4, pp. 183–184, 4 figs., 1955.

Two cases of infection by *Microsporum gypseum*, a rare species in Germany [1, No. 65; 2, No. 866], are reported from the Skin Clinic of the Wilhelms University, Münster, both in young women, one involving the lower arm and the other the nail of the right third finger, a digitus mortuus, this being an unusual feature of onychomycosis.

1666. Andriasyan (G. K.). Клиника и лечение эпидермофитии стоп. [Clinical aspects and therapy of epidermophytosis of the feet.]—Фельдшер и Акушерка [*Surg. Assist., Moscow*], *1952*, 2, pp. 14–19, 1955.

Clinical symptoms, treatment, and preventive measures against epidermophytosis of the feet in the U.S.S.R. are described. A liquid, consisting of atropine 10 parts, glycerine 20 parts, and 8 per cent. acetic acid 70 parts, is recommended for treatment of the affected parts.

1667. Baer (R. L.), Rosenthal (S. A.), & Furnari (Domenica). **Survival of dermatophytes applied to the feet.**—*J. invest. Derm.*, 24, 6, pp. 619–622, 1955.

Experiments at the New York University Post-Graduate Medical School, and the Skin and Cancer Unit of University Hospital, New York, showed that, when a heavy suspension of spores of *Trichophyton mentagrophytes* or of *T. rubrum* was dropped on to the undamaged skin of the feet of 22 human volunteers, no fungi could be seen microscopically or recovered in culture 24 hours later in 12 cases, but they were demonstrated 24 hours later in eight, after two days in two, three days in one, six days in three, eight days in three, and 15 days in one case. Seven of the patients had had previous fungus infections, and of these three were found to be microscopically positive after further inoculation but no cultures were obtained. These results are considered to indicate that in most persons the skin of the feet has a remarkable capacity for ridding itself of pathogenic fungi.

1668. Frank (H.). **Vergleichende Untersuchungen über den Wirkungsmechanismus des Phenylquecksilberborates und des Quecksilber (II) chlorides auf niedere Pilze.** [Comparative studies on the mechanism of operation of phenyl mercury borate and mercuric (II) chloride on lower fungi.]—*Zbl. Bakt.*, Abt. 2, 108, 23–25, pp. 660–671, 12 graphs, 1955.

In comparative experiments at the Botanical Institute of the University of Munich, Germany, merfen (phenyl mercury borate) exerted a much more powerful inhibitory action on the sporulation of *Trichophyton gypseum*

[*T. mentagrophytes*] and *Cephalosporium acremonium* (especially the latter species) [1, No. 1550], procured from the University Skin Clinic and cultured on a medium of 40 gm. malt extract, 5 gm. peptone, and 0·5 gm. zymavitamin-yeast extract in 1,000 ml. tap water, than did a mixture of phenol, mercuric chloride, and boric acid or any of these three constituents alone. It is postulated that mercuric chloride acts primarily by blocking those parenchyma cells in the plasma which catalyse protein synthesis, whereas merfen generally produces a comparable effect on a large number of cellular enzymes. The optimum concentration for the latter compound was 5×10^{-7} to 5×10^{-8} M.

1669. Broughton (R. H.). **Reinfection from socks and shoes in tinea pedis.**—*Brit. J. Derm.*, 67, 7, pp. 249–254, 1955.

At the Royal Naval Hospital, Chatham, an investigation into the reinfection of patients with tinea pedis through the agency of their socks and shoes was carried out on 104 proved and 19 suspected cases, together with 100 normal controls. Dermatophytes—nearly always *Trichophyton interdigitale* [*T. mentagrophytes*] but occasionally *Epidermophyton floccosum* and once *T. crateriforme* [*T. tonsurans*]—were isolated from the socks of 35 of the proved cases, six of the suspected, and five of the controls. *T. mentagrophytes* was readily recovered from the laundered socks of infected patients even when they had been unused for five months. By dyeing a patient's foot it was possible to trace the persistence of skin squamae in the fabric of socks; they were found to survive six successive launderings in woollen, but only two in broad-mesh nylon socks, which are therefore recommended for general use.

Patients in the 'suspected' group in whom no fungus could be demonstrated are believed to have originally harboured a fungal infection which had developed into a recalcitrant mycotic eczema.

1670. Meenan (F. O. C.). **Mycological aspects of tinea capitis in Dublin.**—*Irish J. med. Sci.*, 355, pp. 321–324, 4 figs., 1955.

In a recent survey of 81 separate outbreaks of tinea capitis in Dublin (72 among city children and nine in institutions), *Microsporum audouini* was found to be responsible for 29, *M. canis* for eight, and *Trichophyton tonsurans* for 14, the last-named species being apparently on the increase. Cats and dogs are a constant source of infection, the eradication of which demands concerted efforts by dermatologists, public health officers, and veterinary surgeons.

1671. Licks (F. C.). **Tinea capitis in New Jersey.**—*J. med. Soc. N.J.*, 51, 12, pp. 515–518, 1954.

Tinea capitis (mostly caused by *Microsporum audouini*) is stated to constitute a major public health problem in New Jersey, and the author urges that it should be made a reportable disease. Methods of diagnosis and treatment are reviewed: local therapy, e.g., with 'salundek' (salicylanilide plus undecylenic acid and zinc undecylenate), as recommended by Lewis *et al.* [1, No. 365], should be given a few months' trial before resorting to X-ray epilation.

1672. English (Mary P.) & Warin (R. P.). **Microsporum canis infection of the scalp in an adult with cicatricial alopecia.**—*Brit. J. Derm.*, 67, 5, pp. 196–197, 1955.

A description is presented from the United Bristol Hospitals, Bristol, of infection by *Microsporum canis* of the scalp, associated with long-standing scarring alopecia in a 42-year-old woman. It is presumed that the latter condition enhanced the receptivity of the adult scalp to the tinea.

1673. Reiss (F.), Caroline (Leona), & Leonard (Louise). **Experimental Microsporum lanosum infection in Dogs, Cats, and Rabbits. I. Observation on the course of the primary infection and attempts to develop a method for screening antifungal agents in laboratory animals.**—*J. invest. Derm.*, 24, 6, pp. 575–587, 2 figs., 1955.

At the New York University Post-Graduate Medical School and the Bellevue Hospital, New York, the course of experimental infections of certain domestic animals with *Microsporum lanosum* [*M. canis*: see next entry] was studied. In dogs and puppies positive cultures could be obtained from lesions up to 133 days after inoculation, cultures of the fungus causing more severe infection than diseased hairs. Siamese cats and kittens and alley kittens showed widespread progressive infections, often with heavy involvement of the peri-oral area; the hairs remained fluorescent for up to 251 days. Nine-week-old rabbits showed considerably greater individual variation of response to infection than did the new-born. In view of this finding, and also of the convenience and inexpensiveness of rearing, it is suggested that new-born rabbits might be suitable for screening tests of anti-fungal agents intended for use in human infections.

1674. Reiss (F.) & Leonard (Louise). **Experimental Microsporum lanosum infection in Dogs, Cats, and Rabbits. II. Studies on the course of reinfection.**—*J. invest. Derm.*, 24, 6, pp. 589–598, 1955.

In further studies undertaken to investigate the pattern of reinfection with, and sensitization to, *Microsporum lanosum* [*M. canis*] in domestic animals [see preceding entry], fresh inoculations were performed from 1½ to four months after the clearing of the original infection in the case of rabbits, from one to four months in dogs, and from two weeks to 2½ months in cats. The reinfection resembled the primary infection in all cases, except that the incubation period and subsequent course of the disease were shortened. Only two out of seven dogs showed fluorescence and yielded positive mycological data. The trichophytin test gave inconsistent results.

1675. Rodríguez M. (J. D.). **Nota sobre el aislamiento de dermatofitos.** [A note on the isolation of dermatophytes.]—*Rev. ecuator. Hig. Med. trop.*, 11, 4, pp. 122–126, 4 figs., 1954.

Pure cultures of dermatophytes were consistently obtained from lesions on the glabrous skin and scalp at the Department of Parasitology of the National Institute of Hygiene 'Leopoldo Izquieta Perez', Guayaquil, Ecuador [cf. 1, No. 2168], by pouring plates of Sabouraud's agar, placing them on graph paper marked out in 1 cm. squares and sowing fragments of a fungus culture at each line intersection seen through the agar. The area of 2 cm. in diameter round each point of inoculation was ample for the development of quick-growing contaminants without interfering with pure cultures alongside.

Particular reference is made to two patients with *Microsporum lanosum* [*M. canis*] and one with *Trichophyton tonsurans*.

1676. Showalter (W. V.). **Morphological studies of dermatophytes in Chick-embryo membranes.**—*Trans. Kans. Acad. Sci.*, 57, 2, pp. 149–156, 20 figs., 1954.

At the University of Kansas the parasitic morphology of *Microsporum canis*, *Epidermophyton floccosum*, and *Trichophyton mentagrophytes* was studied on the chorio-allantoic membranes of developing chick embryos and found to be similar to that observed in human lesions. The method presents several

advantages over procedures on other animal subjects, being comparatively inexpensive and easily handled, while the eggs are obtainable in quantity.

1677. Grunberg (E.) & Titsworth (E.). **Experimental studies on drug resistance of dermatophytes. I. The development of drug resistance of Trichophyton mentagrophytes and Microsporum lanosum to undecylenic acid and 2-dimethylamino-6- (β-di-ethylaminoethoxy) benzothiazole dihydrochloride (asterol).**—*J. invest. Derm.*, 25, 2, pp. 113–115, 1955.

Investigations at the Chemotherapy Laboratories, Hoffman-La Roche Inc., Nutley, New Jersey, have shown that *Trichophyton mentagrophytes* and *Microsporum lanosum* [*M. canis*], grown on Sabouraud's agar to which appropriate concentrations of undecylenic acid and of asterol were added separately, develop a low order of resistance to both these fungicides. The degree of resistance was fourfold after two passages for undecylenic acid and did not increase after 19: for asterol the increase was 16- to 32-fold after eight to 13 passages and did not increase after 28.

1678. Di Menna (Margaret E.) & Marples (Mary J.). **Microsporum distortum sp. nov. from New Zealand.**—*Trans. Brit. mycol. Soc.*, 37, 4, pp. 372–374, 1 pl., 1954.

Routine investigations of the dermatophytes of the Otago district of New Zealand from 1947 to 1953 revealed 12 strains of a hitherto undescribed species of *Microsporum*, named *M. distortum* on account of the malformation of the thick-walled, roughened macroconidia, isolated from tinea capitis in children and tinea corporis in both children and adults. The lesions were indistinguishable clinically from those caused by *M. canis* [1, No. 2325].

1679. Durie (E. B.) & Frey (D.). **Isolation of Microsporum gypseum and of Keratinomyces ajelloi from Australian soil.**—*Nature, Lond.*, 176, 4489, p. 936, 1955.

In an examination of 66 soil samples from various parts of New South Wales, made at the Royal North Shore Hospital, Sydney, *Microsporum gypseum* was isolated in pure culture from five samples and *Keratinomyces ajelloi* from eight. This is believed to be the first record of these fungi in Australian soil.

1680. Alkiewicz (J.), Majewski (C.), Moczko (S.), & Janiakowa (Elzbieta). **O hamującym wpływie Chelidonium maius na wzrost grzybów chorobotwórczych.** [Concerning the inhibitory effect of *Chelidonium majus* on the growth of pathogenic fungi.]—*Przegl. Derm.*, 4, pp. 301–304, 1 pl., 1954. [Russian and English summaries.]

In preliminary studies at Poznań, Poland, the sap of *Chelidonium majus* exhibited a marked inhibitory effect on the growth of *Trichophyton interdigitale*, *T. gypseum asteroides* [*T. mentagrophytes*], and *Microsporum audouini*.

1681. Alkiewicz (J.), Majewski (C.), & Janiakowa (Elzbieta). **O działaniu fungistatycznym soku Chelidonium maius (Jaskolczego ziela).** [Concerning the fungistatic action of the sap of *Chelidonium majus* (greater celandine).]—*Przegl. Derm.*, 5, 1, pp. 27–30, 1955. [Russian and English summaries.]

In further studies on *Chelidonium majus* at Poznań, Poland, fresh sap and the infusion of the plant inhibited the growth of *Trichophyton crateriforme* [*T. tonsurans*] and *Epidermophyton* Kaufmann-Wolf [*T. interdigitale*] in addition to the fungi already mentioned [see preceding entry]. The fungistatic factor was found to be thermostable and soluble in water.